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FLOOD INSURANCE STUDY

FULTON COUNTY, OHIO
UNINCORPORATED AREAS

SEPTEMBER 29, 1989

Federal Emergency Management Agency

COMMUNITY NUMBER - 390182

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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Ai Creek	Panels 12P-16P
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Flood Insurance Rate Map

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FLOOD INSURANCE STUDY

FULTON COUNTY,
UNINCORPORATED AREAS,
OHIO

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Unincorporated Areas of Fulton County, Ohio, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for Bad Creek, Brush Creek, Tenmile Creek, North Tenmile Creek, North Turkeyfoot Creek, and a segment of Swan Creek were performed by the U.S. Army Corps of Engineers (COE), Buffalo District, (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2226, Project Order No. 10. This study was completed in April 1987.

The hydrologic and hydraulic analyses for Ai Creek, Blue Creek, Diversion D1, Diversion D2, Fewless Creek, Stream No. 3, Stream No. 7, Tributary A, and a segment of Swan Creek were taken from the U.S. Soil Conservation Service (SCS) report titled "Flood Hazard Analyses Report, Swan Creek, Fewless Creek, Ai Creek, Blue Creek, and Tributaries, Fulton County, Ohio" (Reference 1).

1.3 Coordination

On October 28, 1985, an initial Time and Cost Meeting was held with representatives of FEMA, the Ohio Department of Natural Resources (ODNR), Fulton County, and the Study Contractor. The streams to be studied were determined.

A news article announcing the intent to perform a Flood Insurance Study for Fulton County was published in the Village of Wauseon, Ohio, Expositor. The announcement encouraged those with any relevant facts and technical data concerning local flood hazards to provide the information to the Fulton County Flood Plain Administration, which forwarded the information to the Study Contractor. In addition, letters were sent to the SCS, the U.S. Geological Survey (USGS), Water Resources Division, the ODNR, and Fulton County requesting technical data that would be useful in preparing the Flood Insurance Study for Fulton County.

On November 28, 1988, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of Fulton County, Ohio. The area of study is shown on the Vicinity Map (Figure 1). The incorporated areas within the county were excluded from this study.

Flooding caused by overflow of Fewless Creek, Brush Creek, Ai Creek, Bad Creek, Blue Creek, North Tenmile Creek, Tenmile Creek, North Turkeyfoot Creek, Stream No. 3, Stream No. 7, Swan Creek, and Tributary A, Diversion D1, and Diversion D2 was studied in detail.

Approximate analyses were used to study areas having a low development potential or minimal flood hazards. However, most of those areas were previously studied using approximate analyses. The results were shown on the Flood Hazard Boundary Map for Fulton County, Ohio (Reference 2) and are incorporated into this Flood Insurance Study.

The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through September 1992. The scope and methods of study were proposed to and agreed upon by FEMA and Fulton County.

2.2 Community Description

Fulton County, in northwestern Ohio, has a total area of 407 square miles. The county is bordered on the north by the City of Morenci and Hillsdale and Lenawee Counties, Michigan; on the east by Lucas County, Ohio; on the south by Henry County, Ohio; and on the west by Williams County, Ohio. Fulton County is served by Interstates 80 and 90, U.S. Routes 20 and 127, State Routes 2, 64, 66, 108, 109, and 120, Conrail, the Norfolk Southern Railway, and the Grand Trunk Western Railroad. The 1980 population of Fulton County was reported as 37,756 (Reference 3).

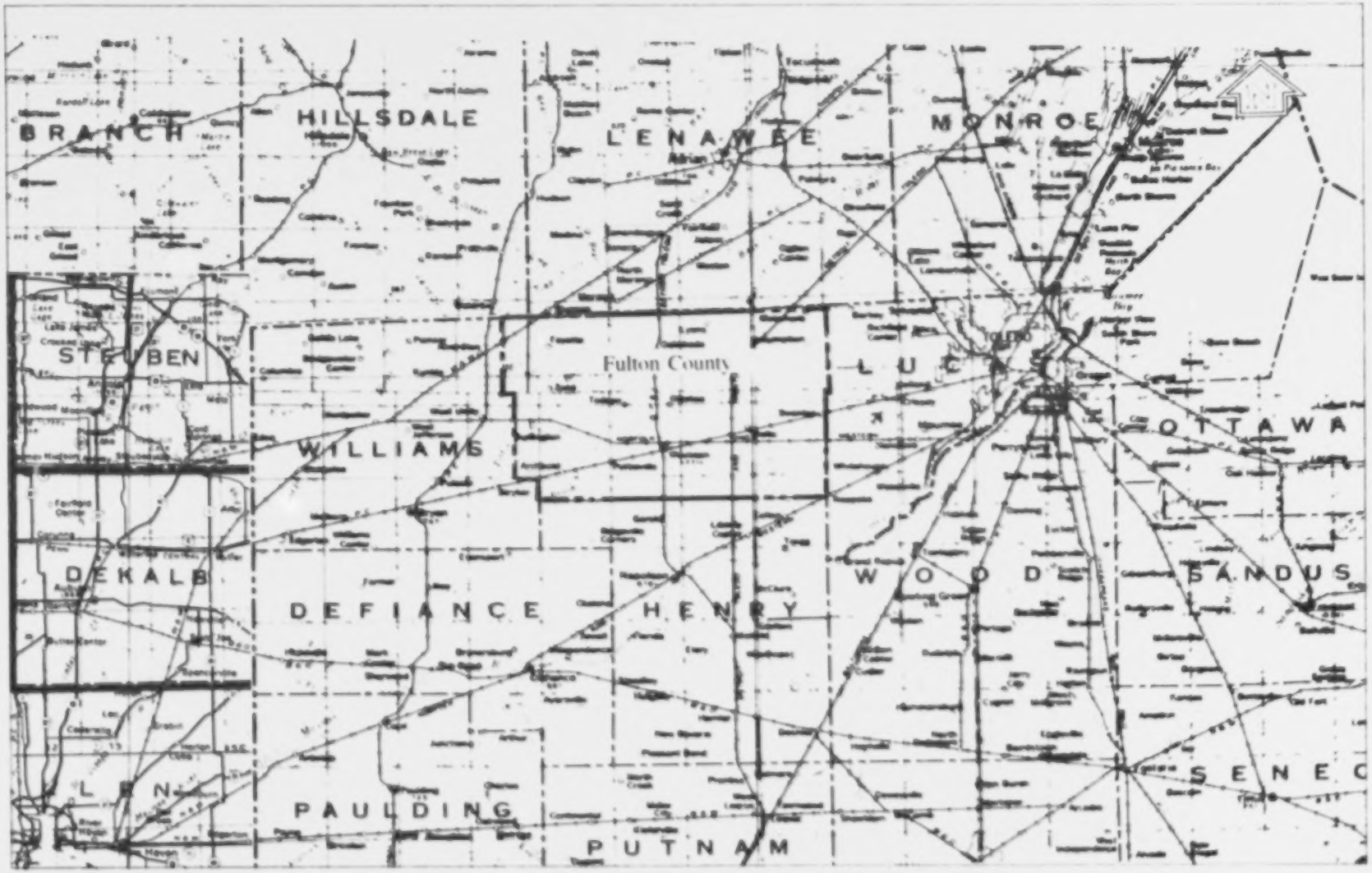


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON CO., OH
(UNINCORPORATED AREAS)

APPROXIMATE SCALE

12 0 12 24 MILES

VICINITY MAP

Fulton County is primarily rural, with nearly 89 percent of its land cultivated or forested. However, an increase in manufacturing and construction industries is anticipated because of the availability of land and easy access to the Ohio Turnpike at the Village of Wauseon, the county seat (Reference 4).

2.3 Principal Flood Problems

Flooding occurred throughout much of Ohio in March 1913 as a result of one of the most intense rainstorms ever recorded in northwestern Ohio. However, no specific information was obtained for this flood relative to the streams in Fulton County.

During winter and spring, flooding has occurred on Swan Creek due to generalized rainstorms. Ice jam flooding has also occurred. The flat topography of the Swan Creek area allows floodwaters to cover large areas. Because the Swan Creek area has such a large amount of agriculture, damage from floodwaters is primarily to crops. A flood occurred on July 4, 1969, that caused significant damage to crops. Other storms of record that caused flooding occurred in 1950, 1956, and 1964. No recurrence interval has been estimated for those floods (Reference 1).

2.4 Flood Protection Measures

Nonstructural measures of flood protection are used to aid in the prevention of future flood damage. These include land use regulations adopted from the Code of Federal Regulations to control development within areas that have a high risk of flooding. No structural flood protection measures are known to exist within the study area.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

There are no stream gaging stations in the immediate area. The closest gages are on the Ottawa River at the University of Toledo, Ohio; on Swan Creek at Toledo, Ohio; and on the Tiffen River at Stryker, Ohio. Discharge-frequency curves for Bad Creek, Brush Creek, Termile Creek, North Turkeyfoot Creek, and portions of Swan Creek were developed using Ohio Bulletin No. 45 (Reference 5). Basin characteristics such as drainage area and channel slope were determined using topographic maps (Reference 6). The average annual precipitation values were taken from Bulletin No. 45.

The COE used Bulletin No. 45 and checked its validity by comparison with discharge-frequency curves developed at gaging stations near Fulton County or discharge-frequency curves developed by other methods in other studies. For this Flood Insurance Study, the only other discharge-frequency curve found was one developed for the SCS Flood Hazard Analyses Report on Swan Creek (Reference 1). The 100-year discharge listed in the Flood Hazard Analyses Report is 1,300 cubic feet per second (cfs), while the 100-year value from the Bulletin No. 45 analysis for Swan Creek is 389 cfs. Because of the discrepancy, a comparison was made between the discharges calculated using Bulletin No. 45 and 8 other areas from the Flood Hazard Analyses Report. In each case, the 100-year discharge using the SCS method was 1.25 to 3.21 times that derived using Bulletin No. 45. For this study, it was deemed appropriate to multiply the Bulletin No. 45 discharges by a constant to bring them more in line with the 100-year discharges estimated by the SCS. Factors were determined by doing a least-square linear regression analysis of the ratio between the SCS 100-year discharge and the Bulletin No. 45 100-year discharge and the drainage area at the site.

Peak discharges for the remaining streams were determined using the SCS TR-20 computer program (Reference 7).

Peak discharge-drainage area relationships for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
BAD CREEK					
at County Road E	47.43	N/A	N/A	4,700	N/A
at State Route 109	43.16	N/A	N/A	4,400	N/A
BRUSH CREEK					
Unnamed Tributary at County Road C	36.68	N/A	N/A	4,100	N/A
Unnamed Tributary at Conrail	28.58	N/A	N/A	3,300	N/A
just downstream of County Road D	20.57	N/A	N/A	2,800	N/A
TENMILE CREEK					
downstream of North Tenmile Creek	30.67	N/A	N/A	2,800	N/A
at confluence of South Tributary	20.31	N/A	N/A	1,900	N/A
downstream of Middle Tributary	17.87	N/A	N/A	1,900	N/A
South Tributary at County Road 4-1	14.27	N/A	N/A	1,600	N/A
NORTH TENMILE CREEK					
at County Route 4-1	6.90	N/A	N/A	900	N/A
NORTH TURKEYFOOT CREEK					
downstream of Tributary at County Road E	13.12	N/A	N/A	2,200	N/A
at Village of Wauseon corporate limit	6.37	N/A	N/A	1,300	N/A
SWAN CREEK					
at County Road 1-1	N/A	1,990	2,840	3,510	4,720
at County Road E-F	N/A	1,960	2,790	3,440	4,630
at County Road F	N/A	1,460	2,170	2,730	3,760
at County Road 4	N/A	1,340	1,920	2,340	3,060
at Conrail	N/A	1,300	1,870	2,290	3,000
at County Road J	N/A	1,120	1,620	1,990	2,600
at County Road K	N/A	730	1,060	1,300	1,700
DIVERSION D1					
at County Road 4	N/A	20	110	210	420
about 2,600 feet upstream of County Road 4	N/A	50	180	280	510

TABLE 1 - SUMMARY OF DISCHARGES (Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
DIVERSION D2					
at mouth	N/A	50	60	70	80
FEWLESS CREEK					
about 600 feet downstream of County Road 3	N/A	540	730	870	1,120
at County Road E-F	N/A	310	350	370	460
about 875 feet upstream of Norfolk Southern Railway	N/A	520	700	830	1,050
at County Road 5-2	N/A	300	390	360	580
at Conrail	N/A	200	240	280	350
about 850 feet downstream of County Road H	N/A	150	220	260	340
AI CREEK					
at Main Street	N/A	950	1,370	1,670	2,160
at Interstate 90	N/A	1,110	1,620	2,010	2,680
at County Road 4	N/A	690	980	1,200	1,600
at County Road 5	N/A	440	610	750	990
at County Road M	N/A	290	430	520	690
STREAM NO. 3					
at County Road E	N/A	150	230	290	380
STREAM NO. 7					
at County Road M	N/A	370	520	630	810
about 775 feet downstream of County Road N	N/A	350	500	600	780
BLUE CREEK					
at County Road 2	N/A	570	810	1,020	1,360
at County Road B	N/A	410	610	770	1,050
about 1,300 feet downstream of County Road C	N/A	390	590	730	990
about 575 feet downstream of County Road C	N/A	260	390	490	650
TRIBUTARY A					
at County Road 1-1	N/A	520	720	860	1,100
at Conrail	N/A	210	290	320	380
at County Road H	N/A	280	390	470	610

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross-section data for the streams studied in detail were obtained by field survey. Bridges were surveyed to obtain elevation data and structural geometry. For Bad Creek, Brush Creek, Tenmile Creek, North Turkeyfoot Creek, and portions of Swan Creek, cross sections between bridges were interpolated using the streambed slope and topographic maps (Reference 6).

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and on the Flood Insurance Rate Map.

For Bad Creek, Brush Creek, Tenmile Creek, North Tenmile Creek, North Turkeyfoot Creek, and portions of Swan Creek, water-surface profiles were developed using the HEC-2 step-backwater computer program (Reference 8). On the main streams, computations were started at critical depth. For tributary streams, water-surface elevations at normal depths were used as starting elevations.

For Fewless Creek, Diversion D1, Diversion D2, Ai Creek, Stream No. 3, Stream No. 7, Blue Creek, Tributary A, and portions of Swan Creek, backwater computations for floodplain elevations were developed using the WSP-2 computer program (Reference 9).

Roughness coefficients (Manning's "n") listed below and contraction and expansion loss coefficients used in the hydraulic computations were chosen by engineering judgment and based on field observation of the streams and floodplain areas.

STREAM	CHANNEL	OVERBANKS
Bad Creek	0.03 - 0.04	0.03 - 0.06
Brush Creek	0.03 - 0.045	0.03 - 0.055
Tenmile Creek	0.03 - 0.035	0.035 - 0.055
North Tenmile Creek	0.03 - 0.035	0.03 - 0.045
North Turkeyfoot Creek	0.03 - 0.05	0.07
Swan Creek	0.03 - 0.04	0.04 - 0.06

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been shown.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the map and described in the exhibit labeled Elevation Reference Marks.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24000 with a contour interval of 5 feet (Reference 6).

The 100-year and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map. On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE) and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary was delineated using the Flood Hazard Boundary Map for Fulton County (Reference 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces the flood-carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot,

provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways for this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections and are shown in Table 2, Floodway Data. The computed floodways are shown on the Flood Insurance Rate Map. In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplain will not cause more than a 1.0-foot increase in the base flood elevations at any point within the community.

The area between the floodway and the 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

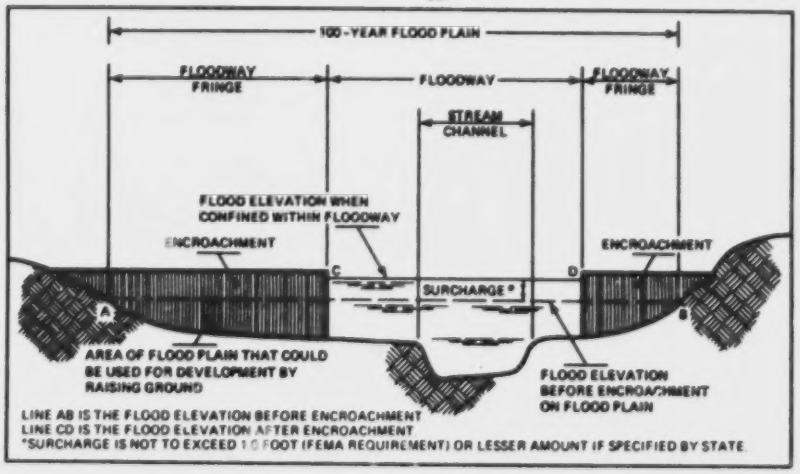

100-YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE *
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FIGURE 2 - Floodway Schematic

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
SWAN CREEK								
A	550	211	1541	2.3	663.8	663.8	664.3	0.5
B	3180	375	4137	0.9	666.6	666.6	667.1	0.5
C	4920	239	2607	1.4	667.4	667.4	667.9	0.5
D	6520	232	2523	1.4	668.0	668.0	668.5	0.5
E	8690	312	3404	1.0	670.4	670.4	670.9	0.5
F	10,660	637	6774	0.5	671.5	671.5	672.0	0.5
G	12,610	374	3088	0.5	671.8	671.8	672.3	0.5
H	15,060	380	2524	1.1	673.9	673.9	674.4	0.5
I	17,060	205	1517	1.8	676.7	676.7	677.2	0.5
J	18,780	237	1583	1.7	678.9	678.9	679.4	0.5
K	20,750	262	1270	2.0	682.0	682.0	682.5	0.5
L	21,680	258	1198	2.0	683.2	683.2	683.7	0.5
M	24,550	200	882	2.7	687.2	687.2	687.7	0.5
N	26,730	176	779	3.0	691.0	691.0	691.5	0.5
O	29,210	255	1049	2.2	695.1	695.1	695.6	0.5
P	31,330	240	944	2.4	698.1	698.1	698.6	0.5
Q	32,650	190	720	3.2	701.4	701.4	701.9	0.5
R	34,050	198	930	2.5	705.9	705.9	706.4	0.5
S	35,430	186	1582	1.4	710.1	710.1	710.6	0.5
T	37,550	166	1001	2.3	711.8	711.8	712.3	0.5
U	39,350	206	1018	2.2	714.1	714.1	714.6	0.5
V	42,400	184	1046	2.2	718.5	718.5	719.0	0.5
W	43,600	218	1074	2.1	719.9	719.9	720.4	0.5
X	44,825	183	1040	2.2	722.4	722.4	722.9	0.5
Y	46,350	145	934	2.5	724.9	724.9	725.4	0.5
Z	48,550	250	1621	1.2	728.6	728.6	729.1	0.5

[1]FEET ABOVE COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH

(UNINCORPORATED AREAS)

FLOODWAY DATA

SWAN CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
SWAN CREEK								
AA	49,420	209	1314	1.5	729.1	729.1	729.6	0.5
AB	50,700	168	935	2.1	730.6	730.6	731.1	0.5
AC	52,035	83	474	4.2	733.3	733.3	733.8	0.5
AD	54,335	192	873	1.5	735.3	735.3	735.8	0.5
AE	56,235	125	535	2.4	738.9	738.9	739.4	0.5
AF	57,735	60	476	2.7	740.2	740.2	741.2	1.0
AG	59,015	43	181	7.2	741.4	741.4	742.0	0.6
AH	60,685	80	475	2.7	744.6	744.6	745.5	0.9
AI	63,435	181	313	4.2	748.6	748.6	749.3	0.7
AJ	65,525	220	728	1.8	751.2	751.2	752.1	0.9
NORTH TURKEYFOOT CREEK								
A	500[2]	144	760	1.7	732.4	732.4	732.5	0.1
B	1000[2]	52	370	3.5	732.6	732.6	732.8	0.2
C	2000[2]	40	281	4.6	733.7	733.7	734.3	0.6
D	4000[2]	50	381	3.4	738.1	738.1	738.4	0.3
E	5200[2]	50	339	3.8	739.8	739.8	740.4	0.6
F	6300[2]	47	243	5.3	742.1	742.1	742.9	0.8

[1]FEET ABOVE COUNTY BOUNDARY
[2]FEET ABOVE TOWNSHIP ROAD E

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

SWAN CREEK—NORTH TURKEYFOOT CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
TENMILE CREEK								
A	2650	189	766	3.7	712.2	712.2	712.4	0.2
B	9970	350	3512	0.8	720.3	720.3	720.8	0.5
C	11,450	155	1364	1.4	720.4	720.4	720.9	0.5
D	13,450	131	881	2.2	720.5	720.5	721.0	0.5
E	15,830	131	875	2.2	721.1	721.1	721.7	0.6
F	18,430	100	449	3.6	723.8	723.8	723.9	0.1
NORTH TENMILE CREEK								
A	300[2]	50	160	5.6	720.3	711.6[3]	711.7	0.1
B	2800[2]	50	220	4.1	720.3	716.4[3]	717.1	0.7
C	5050[2]	50	185	4.9	720.3	720.3	720.8	0.5

[1]FEET ABOVE COUNTY BOUNDARY
[2]FEET ABOVE MOUTH
[3]ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM TENMILE CREEK

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

TENMILE CREEK—NORTH TENMILE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
AI CREEK								
A	8195	430[2]	1843	1.1	680.2	680.2	680.7	0.5
B	9195	391	1531	1.3	680.7	680.7	681.2	0.5
C	11,365	664	2224	0.9	684.9	684.9	685.4	0.5
D	13,270	195	893	2.3	688.0	688.0	688.5	0.5
E	14,470	149	633	3.2	689.5	689.5	690.0	0.5
F	16,220	250	799	2.5	694.4	694.4	694.9	0.5
G	18,220	160	841	2.4	697.6	697.6	698.1	0.5
H	20,520	286	1344	1.4	702.3	702.3	702.8	0.5
I	22,810	231	989	1.8	705.6	705.6	706.1	0.5
J	24,210	268	1311	1.4	708.8	708.8	709.3	0.5
K	26,070	289	1183	1.5	711.3	711.3	711.8	0.5
L	27,170	230	947	1.9	713.8	713.8	714.3	0.5
M	28,500	277	1757	1.0	714.7	714.7	715.2	0.5
N	29,980	218	1045	1.7	718.3	718.3	718.8	0.5
O	32,005	158	768	1.6	721.9	721.9	722.4	0.5
P	33,965	161	756	1.7	725.2	725.2	725.7	0.5
Q	36,005	80	470	2.7	727.5	727.5	728.0	0.5
R	37,655	202	976	1.2	729.8	729.8	730.3	0.5
S	39,245	682	1879	0.6	730.5	730.5	731.0	0.5
T	41,145	874	2811	0.4	731.0	731.0	731.5	0.5
U	42,595	158	679	1.8	733.0	733.0	733.5	0.5
V	44,070	390	1350	0.9	733.6	733.6	734.1	0.5
W	46,095	159	550	1.4	734.9	734.9	735.4	0.5
X	48,145	117	396	1.9	737.4	737.4	737.9	0.5
Y	49,170	134	454	1.6	738.3	738.3	738.8	0.5
Z	50,520	572	1131	0.5	739.3	739.3	739.8	0.5

[1]FEET ABOVE COUNTY BOUNDARY
[2]THIS WIDTH EXTENDS WITHIN AREA NOT INCLUDED

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

AI CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
AI CREEK								
AA	52,095	402	719	0.7	740.2	740.2	740.7	0.5
AB	53,595	244	360	1.5	742.7	742.7	743.2	0.5
AC	54,920	96	298	1.8	744.8	744.8	745.3	0.5
BAD CREEK								
A	3500	260	1697	2.8	668.7	668.7	669.4	0.7
B	8600	240	2126	2.2	671.4	671.4	672.2	0.8
C	12,200	250	2002	2.3	673.6	673.6	674.3	0.7
D	17,200	243	1763	2.7	677.0	677.0	677.5	0.5
E	20,100	243	1351	3.5	678.6	678.6	679.0	0.4
F	24,400	195	1673	2.8	683.4	683.4	684.0	0.6
G	26,400	195	1586	3.0	684.2	684.2	684.9	0.7
H	29,790	235	1880	2.3	688.2	688.2	688.6	0.4
I	32,200	245	1273	3.5	688.4	688.4	689.4	1.0
J	35,750	330	2316	1.9	693.6	693.6	694.2	0.6
K	37,600	375	2789	1.6	693.7	693.7	694.5	0.8
L	38,600	375	1811	2.4	693.7	693.7	694.7	1.0

[1]FEET ABOVE COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

AI CREEK—BAD CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
BLUE CREEK								
A	430	431	1166	0.9	666.1	666.1	666.6	0.5
B	2940	306	836	1.2	667.1	667.1	667.6	0.5
C	4320	75	353	2.9	668.0	668.0	668.5	0.5
D	6040	134	605	1.7	668.8	668.8	669.3	0.5
E	6980	179	592	1.7	669.7	669.7	670.2	0.5
F	7960	804	619	1.6	670.1	670.1	670.6	0.5
G	9410	99	539	1.9	670.7	670.7	671.2	0.5
H	11,130	40	298	3.4	671.5	671.5	672.0	0.5
I	12,840	240	940	1.1	672.0	672.0	672.5	0.5
J	13,590	385	957	0.8	672.2	672.2	672.7	0.5
K	14,140	119	406	1.9	672.5	672.5	673.0	0.5
L	15,465	232	1094	0.7	672.8	672.8	673.3	0.5
M	16,605	470	2069	0.4	672.9	672.9	673.4	0.5
N	17,975	472	1561	0.5	673.0	673.0	673.5	0.5
O	19,770	187	637	0.8	673.2	673.2	673.7	0.5

[1]FEET ABOVE COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

BLUE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
FEWLESS CREEK								
A	1700	242	2076	0.4	671.7	671.7	672.2	0.5
B	3400	294	1687	0.5	671.9	671.9	672.4	0.5
C	5305	218	913	1.0	672.5	672.5	673.0	0.5
D	6805	125	434	1.7	673.7	673.7	674.2	0.5
E	8455	35	202	3.7	677.0	677.0	677.5	0.5
F	10,555	34	160	2.3	679.0	679.0	679.5	0.5
G	11,635	32	140	2.6	680.4	680.4	680.9	0.5
H	13,510	34	145	2.6	683.2	683.2	683.7	0.5
I	14,685	204	913	0.9	689.1	689.1	689.6	0.5
J	16,980	105	429	1.1	691.4	691.4	691.9	0.5
K	18,480	31	175	2.6	692.7	692.7	693.2	0.5
L	20,255	68	243	1.9	696.8	696.8	697.3	0.5
M	23,230	77	182	2.5	702.9	702.9	703.4	0.5
N	24,680	360	448	1.0	707.2	707.2	707.7	0.5
O	26,180	31[2]	115	2.4	709.7	709.7	710.2	0.5
P	29,480	332[2]	1008	0.3	721.0	721.0	721.5	0.5
Q	35,675	34	124	2.1	731.6	731.6	732.1	0.5

[1]FEET ABOVE MOUTH
[2]THIS WIDTH IS WITHIN AREA NOT INCLUDED

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

FEWLESS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
STREAM NO. 3								
A	775	33	103	2.78	675.0	675.0	675.5	0.5
B	1550	34	116	2.46	676.5	676.5	677.0	0.5
C	3300	520	715	0.40	677.3	677.3	677.8	0.5
STREAM NO. 7								
A	1575	113	434	1.4	720.8	720.8	721.3	0.5
B	2875	82	302	2.0	723.4	723.4	723.9	0.5
C	3775	101	332	1.8	724.2	724.2	724.7	0.5
D	5700	255	485	1.2	726.2	726.2	726.7	0.5
E	6700	689	365	1.7	727.1	727.1	727.6	0.5

[1]FEET ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

STREAM NO. 3 – STREAM NO. 7

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
BRUSH CREEK								
A	3480	130	899	4.6	714.3	714.3	714.7	0.4
B	8850	230	2321	1.8	715.3	715.3	716.1	0.8
C	15,450	259	2171	1.9	719.2	719.2	719.9	0.7
D	17,380	115	682	6.0	719.5	719.5	720.1	0.6
E	21,100	133	1304	2.5	722.9	722.9	723.4	0.5
F	25,480	224	1955	1.7	725.9	725.9	726.8	0.9
G	27,730	222	1115	3.0	726.2	726.2	727.1	0.9
H	30,200	300	1322	2.1	728.6	728.6	729.2	0.6
TRIBUTARY A								
A	600[2]	197	572	1.5	664.9	664.9	665.4	0.5
B	2400[2]	136	504	1.7	667.7	667.7	668.2	0.5
C	3480[2]	146	417	2.1	670.8	670.8	671.3	0.5
D	4605[2]	123	418	2.1	673.8	673.8	674.3	0.5
E	6330[2]	108	432	2.0	678.3	678.3	678.8	0.5
F	10,130[2]	423	346	0.9	683.6	683.6	684.1	0.5
G	10,780[2]	11	58	8.2	685.3	685.3	685.8	0.5
H	12,005[2]	935	1267	0.4	686.2	686.2	686.7	0.5
I	13,760[2]	330	495	1.0	688.9	688.9	689.4	0.5
DIVERSION D2								
A	1735[3]	20	46	1.43	684.4	684.4	684.9	0.5
B	2545[3]	18	49	1.35	685.2	685.2	685.7	0.5

[1]FEET ABOVE TOWNSHIP ROAD 24
[2]FEET ABOVE COUNTY BOUNDARY
[3]FEET ABOVE CONFLUENCE WITH FEWLESS CREEK

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOODWAY DATA

BRUSH CREEK—TRIBUTARY A—DIVERSION D2

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

7.0 OTHER STUDIES

The Flood Insurance Studies published for Lucas and Williams Counties, Ohio (References 10 and 11) are in agreement with this study.

The Flood Insurance Studies published for the Villages of Delta and Swanton, Ohio (References 12 and 13) are not in agreement with this study. Detailed flooding extending into the villages presented in this report should be added to the Flood Insurance Studies for the Villages of Delta and Swanton in the future.

The Flood Insurance Rate Map printed for the Village of Archbold, Ohio (Reference 14) is not in agreement with this study. The map for the Village of Archbold should be revised in the future to include detailed flooding from Brush Creek.

This Flood Insurance Study supersedes the previously printed Flood Hazard Boundary Map for Fulton County (Reference 2).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 175 West Jackson Boulevard, 4th Floor, Chicago, Illinois 60604-2698.

9.0 REFERENCES AND BIBLIOGRAPHY

1. U.S. Department of Agriculture, Soil Conservation Service, Flood Hazard Analyses Report, Swan Creek, Fewless Creek, Ai Creek, Blue Creek, and Tributaries, Fulton County, Ohio, January 1979.

2. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Fulton County, Unincorporated Areas, Ohio, January 1978.

3. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Ohio, Washington, D.C., February 1982.

4. Wyrick, E.R., A. Crawford, and Thomas N. Stahl, 1983 Map of Fulton County, Ohio, 1983.

5. Ohio Department of Natural Resources, Division of Water, Bulletin No. 45, Floods in Ohio, Magnitude and Frequency, Columbus, Ohio, May 1977.

6. U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 5 Feet: Archbold, Ohio, photorevised 1971; Assumption, Ohio, photorevised 1971; Colton, Ohio, photorevised 1971; Delta, Ohio, photorevised 1971; Lyons, Ohio, photorevised 1971; Ridgeville Corners, Ohio, photorevised 1971; Swanton, Ohio, photorevised 1971.

7. U.S. Department of Agriculture, Soil Conservation Service, Engineering Division, Technical Release No. 20, Computer Program for Project Formulation, Hydrology, May 1965.

8. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Computer Program 723-X6-L202A, Davis, California, April 1984.

9. U.S. Department of Agriculture, Soil Conservation Service, Technical Release No. 61, WSP-2 Computer Program, May 1976.

10. Federal Emergency Management Agency, Flood Insurance Study, Lucas County, Unincorporated Areas, Ohio, March 1983.

11. ————, Flood Insurance Study, Williams County, Unincorporated Areas, Ohio, August 1987.

12. _____, Flood Insurance Study, Village of Delta, Fulton County, Ohio, May 1984.

13. _____, Flood Insurance Study, Village of Swanton, Fulton County, Ohio, February 1984.

14. _____, Flood Insurance Rate Map, Village of Archbold, Fulton County, Ohio, January 1985.

ELEVATION REFERENCE MARKS

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
1	0056	726.87	U.S. Geological Survey (USGS) standard tablet set on upstream headwall of Township Road 4-1 bridge over Tenmile Creek
2	0056	726.72	located on upstream headwall of culvert under Township Road 4-1 bridge over North Tenmile Creek
3	0057	711.57	orange chiseled square located on south abutment of County Route 1 bridge over Tenmile Creek
4	0064	738.19	chiseled cross on top of upstream end of pipe culvert for Swan Creek under County Route K
5	0064	749.73	chiseled circle on east abutment of County Route L bridge over Swan Creek
6	0064	747.75	USGS chiseled square on top of 4 x 4 foot catch basin cover located 120 feet north and 16 feet west of intersection of County Road 7-1 and County Road K
7	0064	745.54	cut cross on top of corrugated metal pipe culvert for Swan Creek on downstream end at County Route 7-1
8	0070	693.32	railroad spike in telephone pole located about 300 feet north of intersection of County Route J and State Route 64
9	0070	720.07	nail in hole at north end of corrugated arch culvert for Stream No. 7 under County Route M
10	0070	727.88	cut square on lower step of southwest wingwall of County Route N bridge over Stream No. 7
11	0070	731.24	cut square on southwest concrete wall of Township Road 4 bridge over Ai Creek

ELEVATION REFERENCE MARKS (Continued)

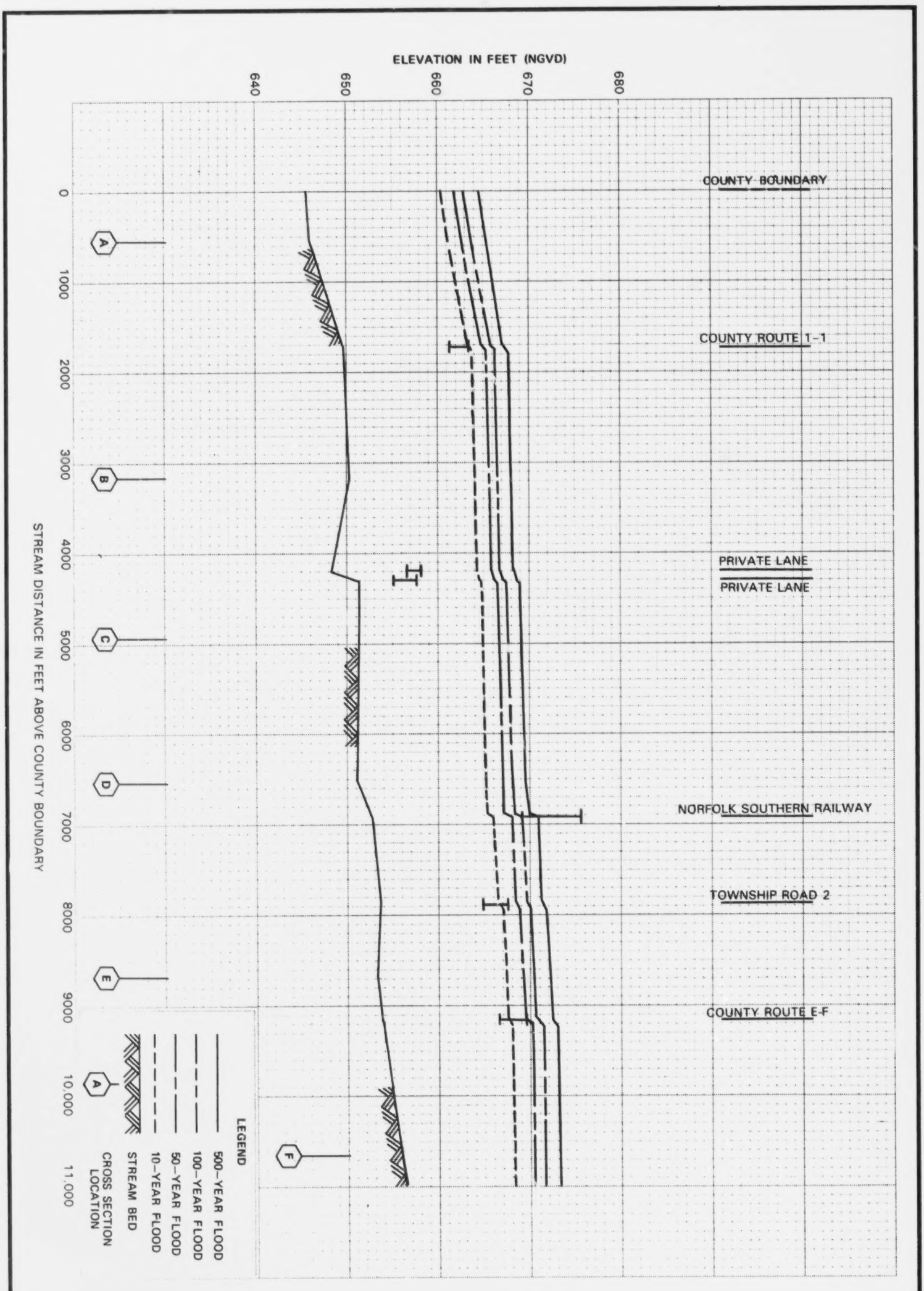
REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
12	0070	746.06	cut square on east wall of Township Road 6 bridge over Ai Creek
13	0095	729.39	chiseled square on west abutment of County Route D bridge over Brush Creek
14	0095	722.31	located on west abutment of County Route C bridge over Brush Creek
15	0095	712.72	mark on west abutment of Township Road 24 bridge over Brush Creek
16	0109	735.45	orange painted circle on top of south abutment of Township Road E bridge over North Turkeyfoot Creek
17	0109	738.25	orange painted circle on top of north abutment of County Route 13 bridge over North Turkeyfoot Creek
18	0127	717.43	cut square on south end of 66-inch pipe culvert for Fewless Creek under State Route 2
19	0127	717.42	cut cross on stone wall located on south side of County Route H bridge over Fewless Creek
20	0129	703.58	U.S. Coast and Geodetic Survey standard disk located 368 feet east of the intersection of Norfolk Southern Railway and State Route 109, 56 feet north of the railroad on concrete post near Bad Creek
21	0129	709.02	chiseled cross on top of guardrail at downstream right side of State Route 109 bridge over Bad Creek
22	0129	707.27	railroad spike in power pole located about 2,000 feet east of intersection of County Route 6-2 and County Route F
23	0133	684.03	cut cross on angle iron for southwest retaining wall of Township Road 4 bridge over Swan Creek

ELEVATION REFERENCE MARKS (Continued)

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
24	0133	671.33	cut square on southwest wall of County Route 3 bridge over Fewless Creek
25	0133	682.32	cut square on south end of culvert pipe for Fewless Creek under County Route E-F
26	0133	699.14	railroad spike in power pole located on southwest corner of intersection of County Route F and County Route 5-2
27	0135	663.40	cut square on southwest wall of County Route 1-1 bridge over Swan Creek
28	0135	670.22	cut square on top of I-beam post for guardrail located at southwest corner of County Route E-F bridge over Swan Creek
29	0135	663.40	cut square on southwest wingwall of County Route 1-1 bridge over Tributary A
30	0135	687.41	cut square on north headwall of County Route H bridge over Tributary A
31	0135	703.95	cut cross on southwest wingwall of State Route 2 bridge over Swan Creek
32	0135	723.46	cut square on northeast wall of County Route 5-2 bridge over Swan Creek
33	0145	669.10	cut square on top step of northeast wingwall of Township Road 2 bridge over Blue Creek
34	0145	671.95	cut square on top step of northeast wingwall of County Route 3 bridge over Blue Creek
35	0145	672.82	nail in top of north end of culvert for Blue Creek under Township Road C

ELEVATION REFERENCE MARKS (Continued)

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
36	0145	666.16	chiseled cross on top of east abutment of County Route A bridge over Bad Creek
37	0145	670.78	cut square on top of southwest wingwall of County Route B bridge over Bad Creek
38	0145	670.55	chiseled square on top of north abutment of County Route 5 bridge over Bad Creek



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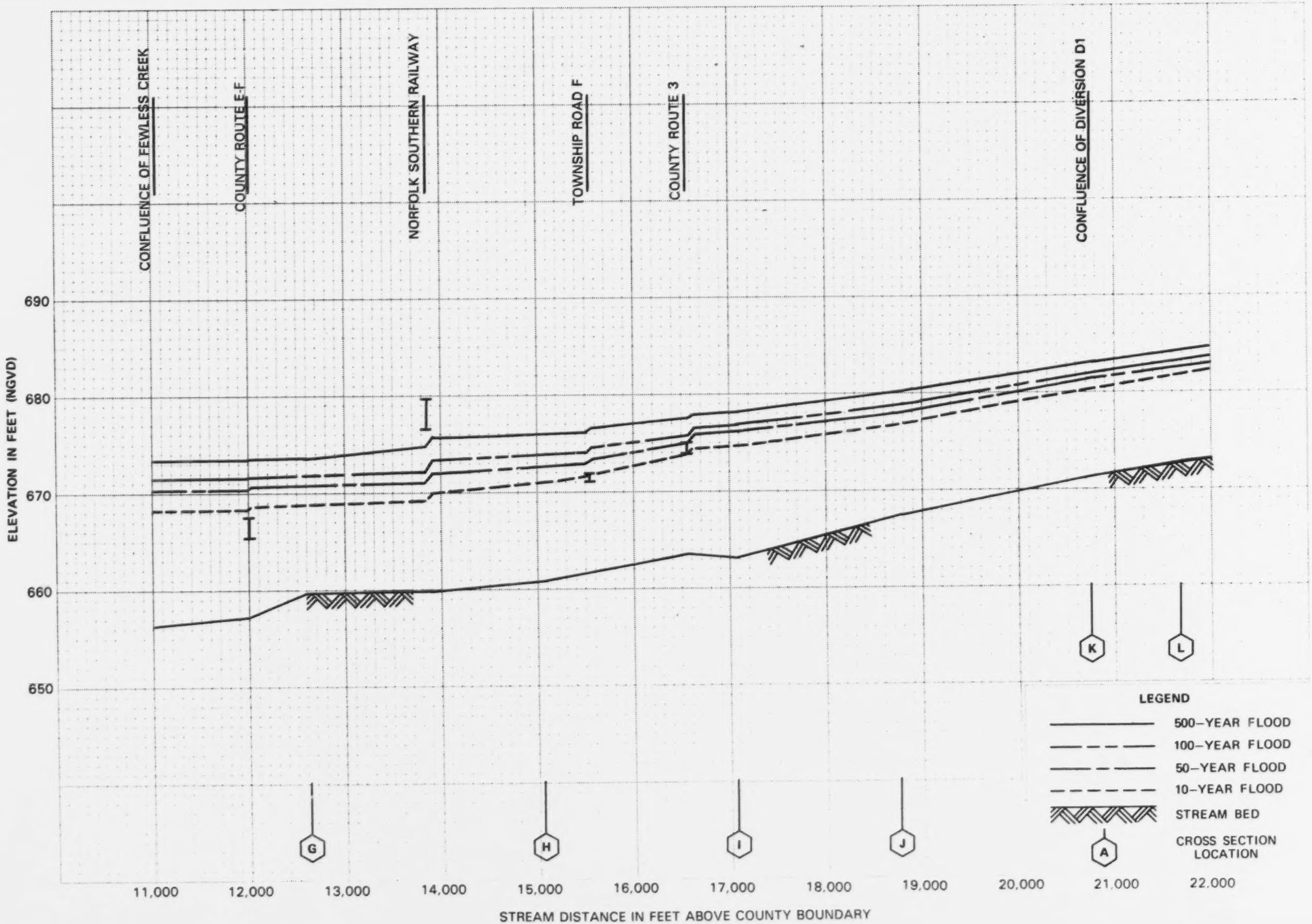
01P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **SWAN CREEK**



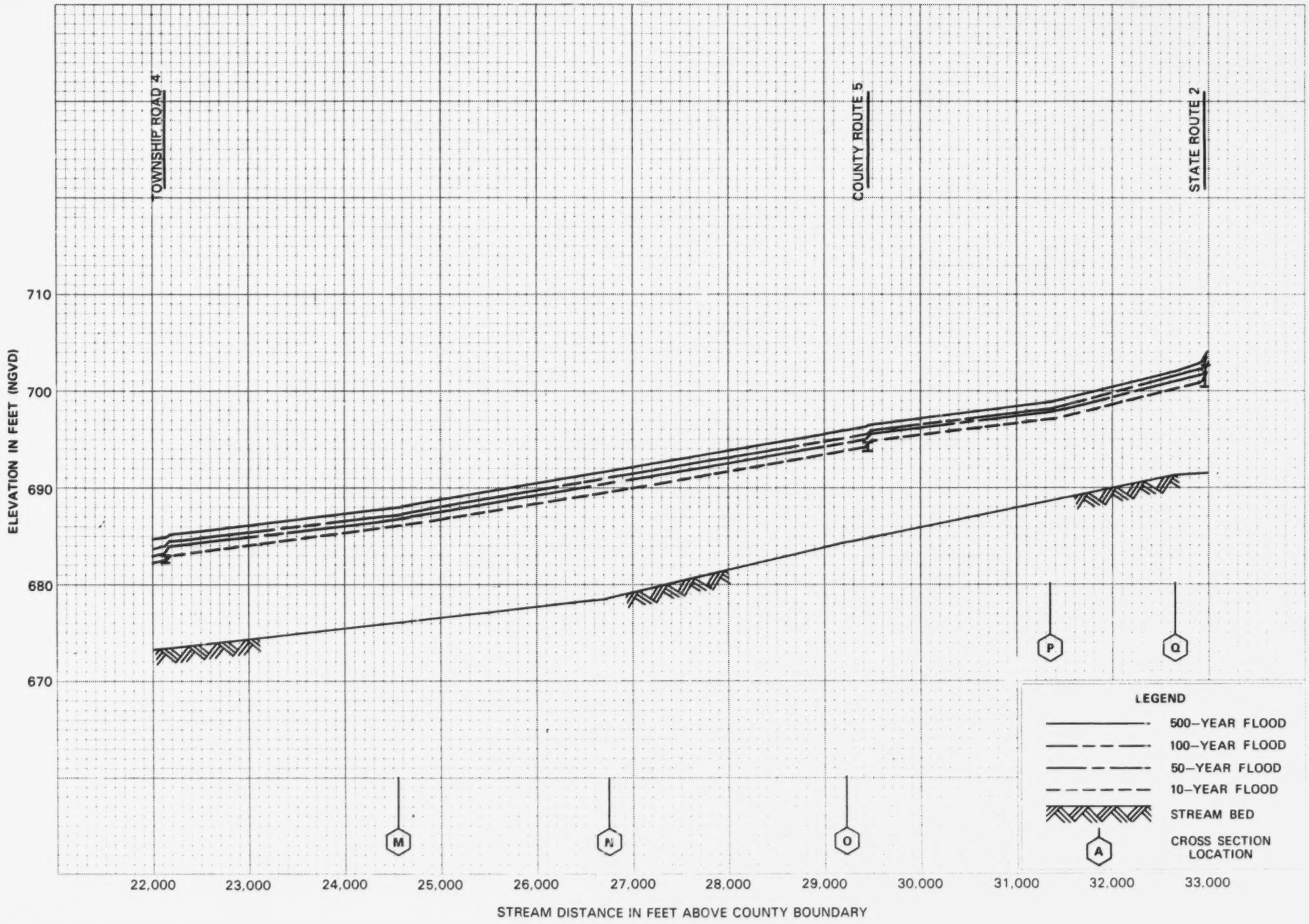
FLOOD PROFILES

SWAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

02P



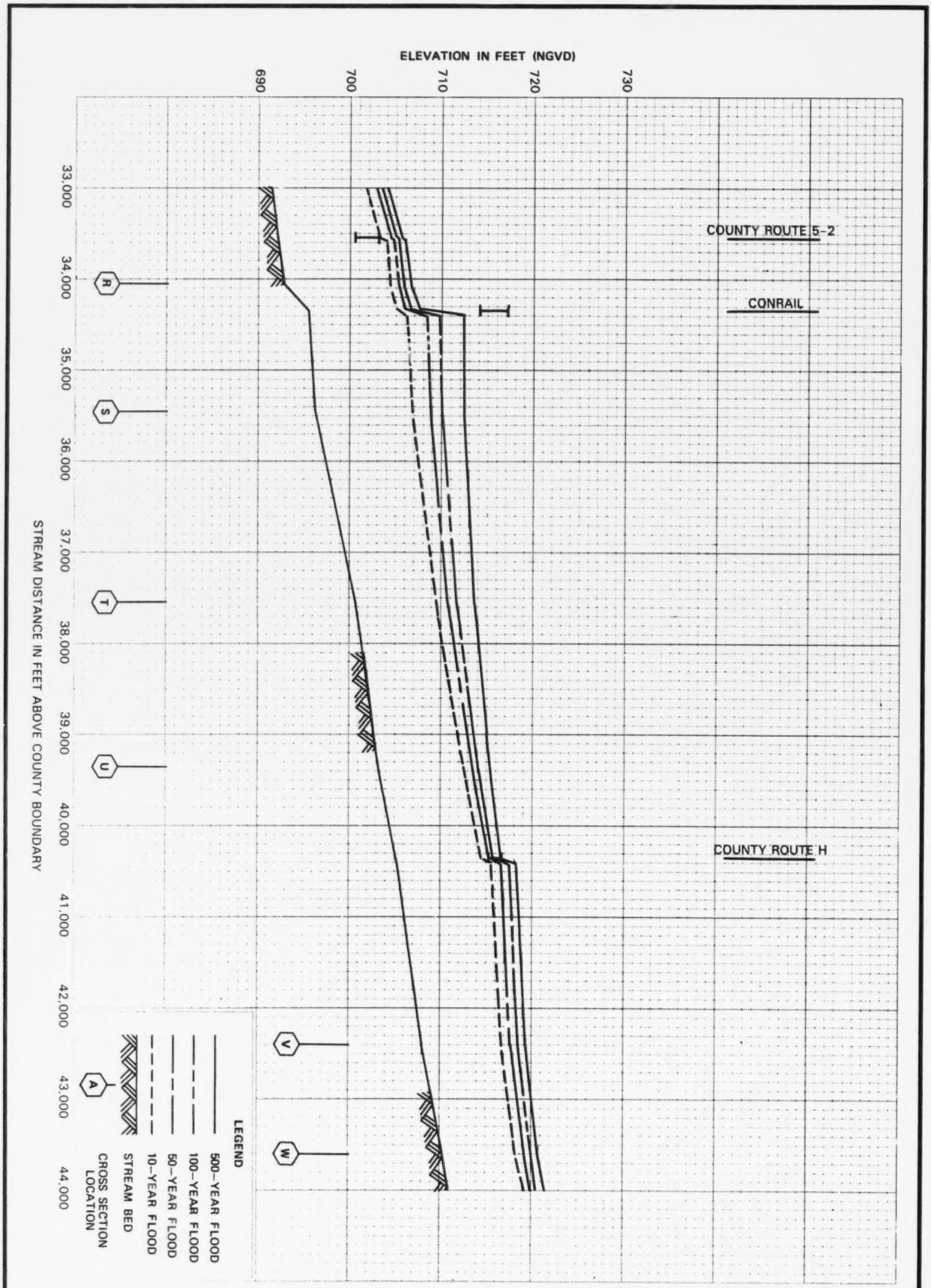
FLOOD PROFILES

SWAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

03P



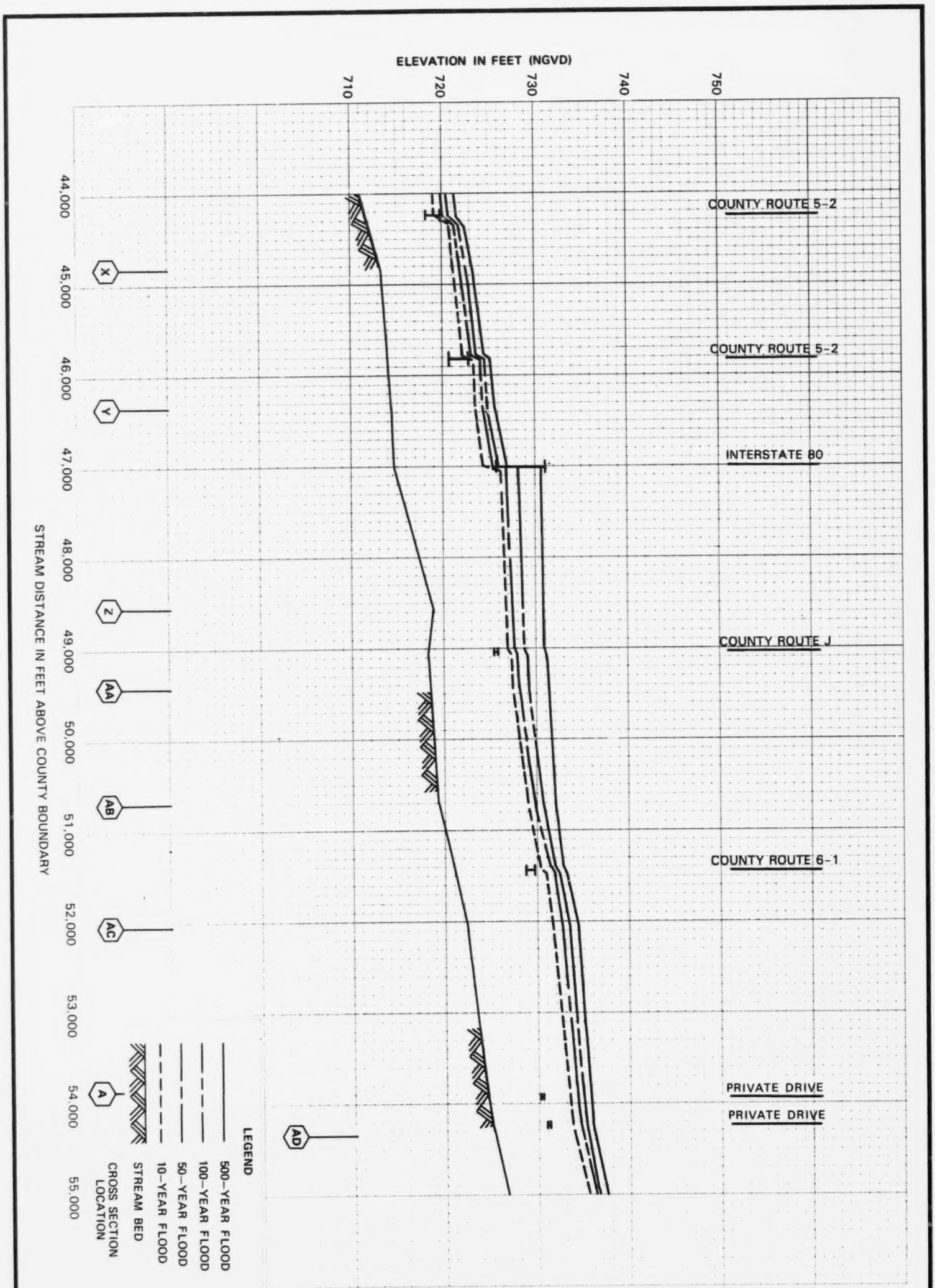
FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

SWAN CREEK

04P



FEDERAL EMERGENCY MANAGEMENT AGENCY

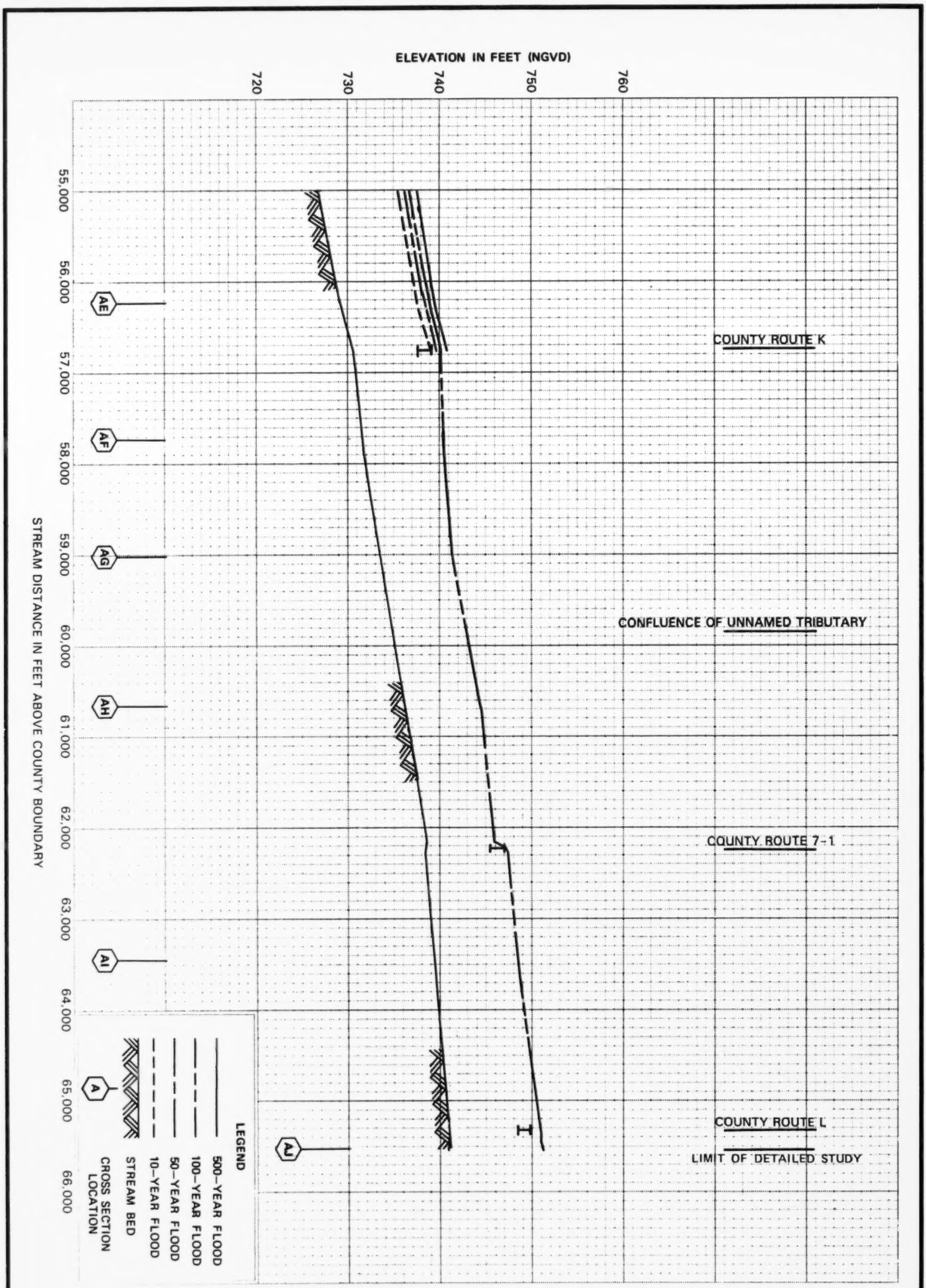
FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

SWAN CREEK

05P

31



32

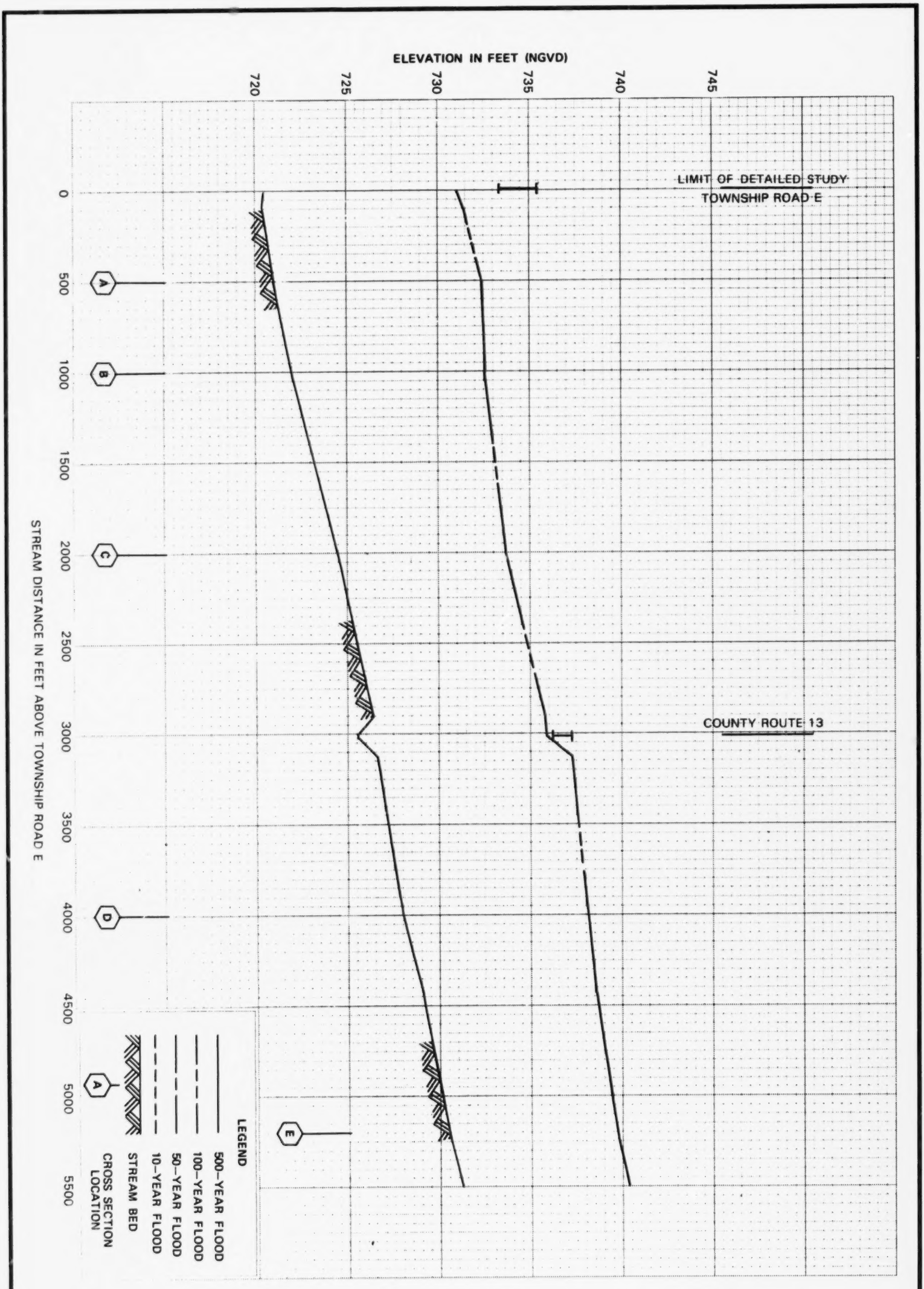
FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

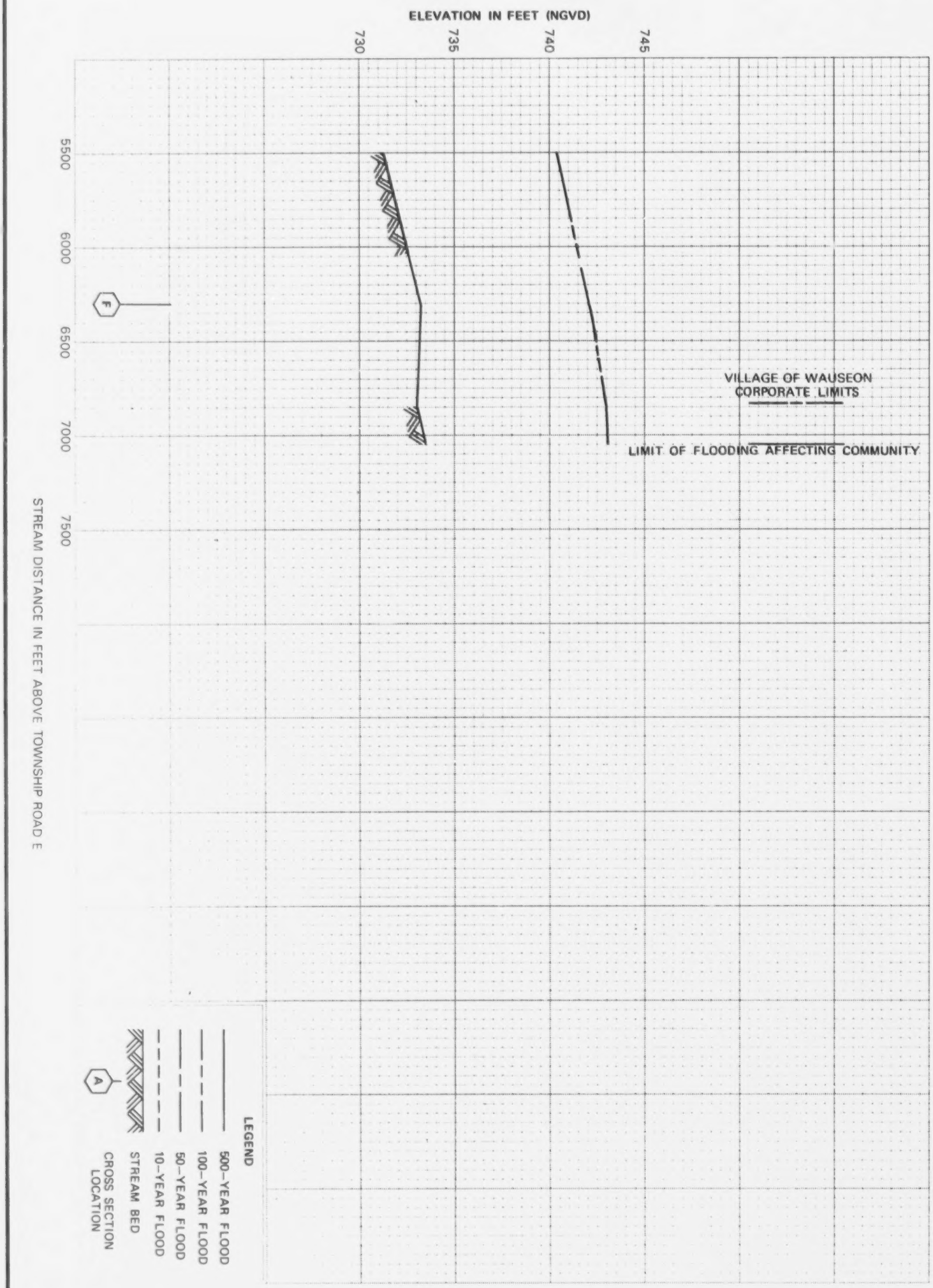
FLOOD PROFILES

SWAN CREEK

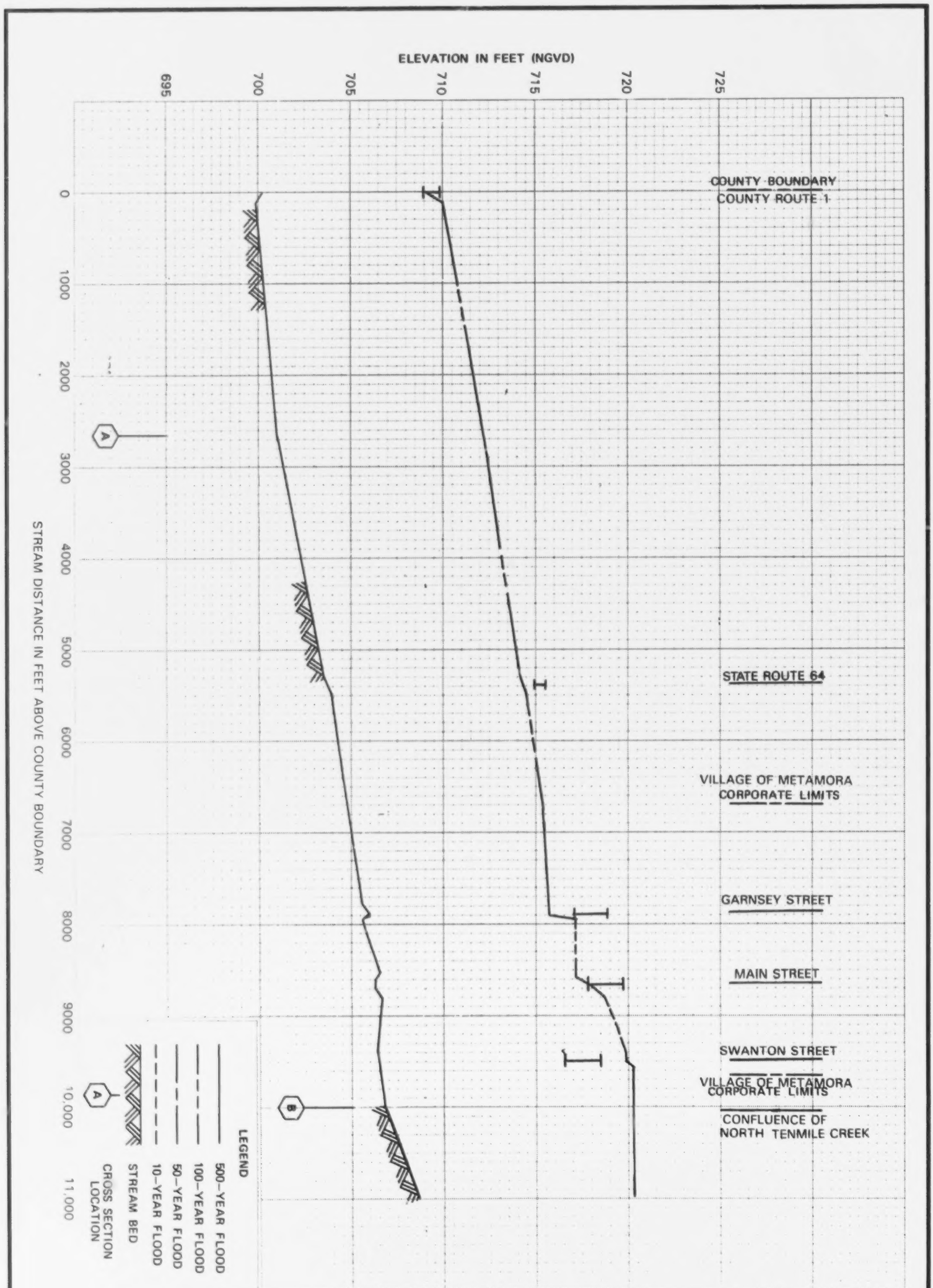
06P



07P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **NORTH TURKEYFOOT CREEK**



08P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **NORTH TURKEYFOOT CREEK**



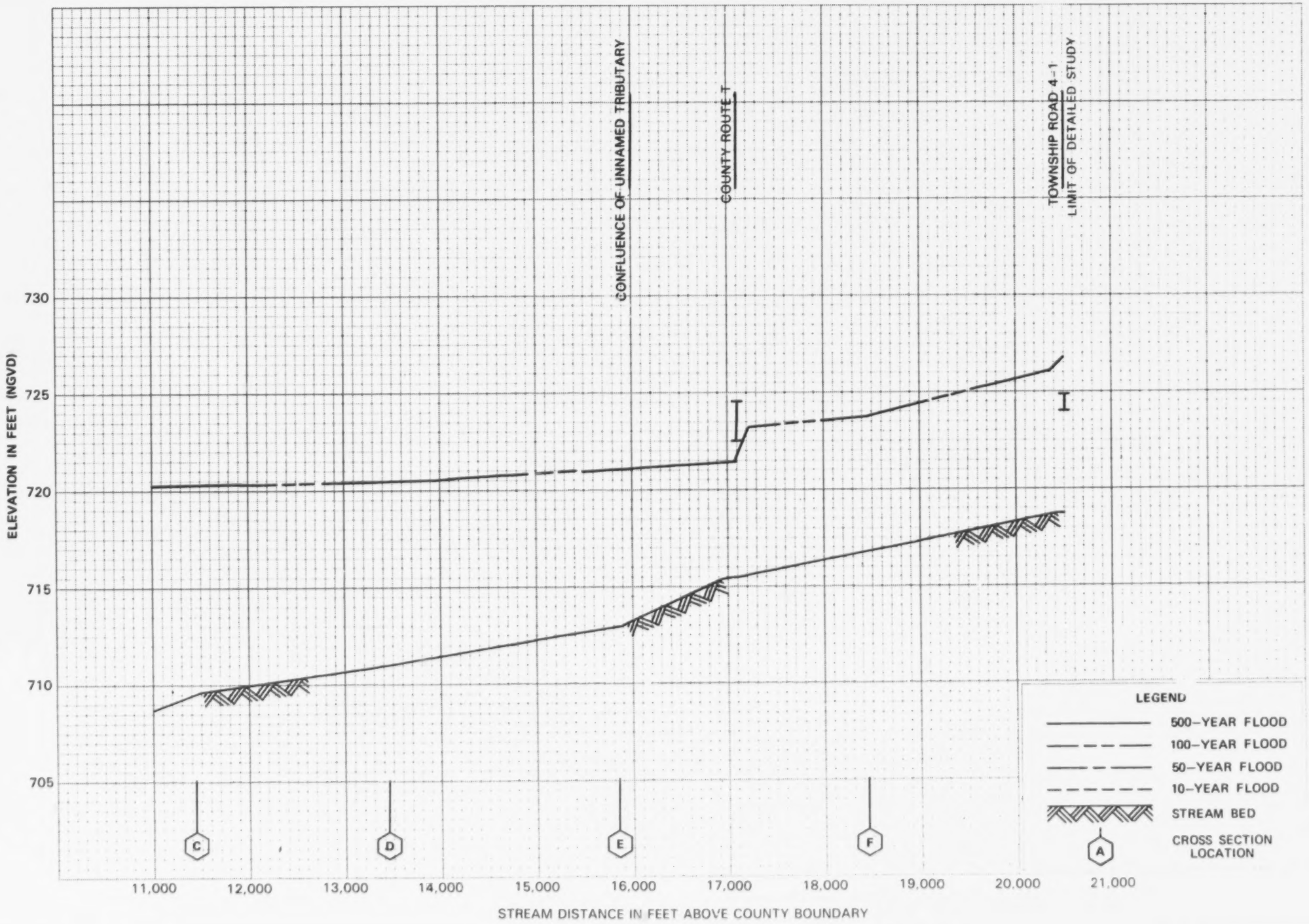
FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

TENMILE CREEK

09P



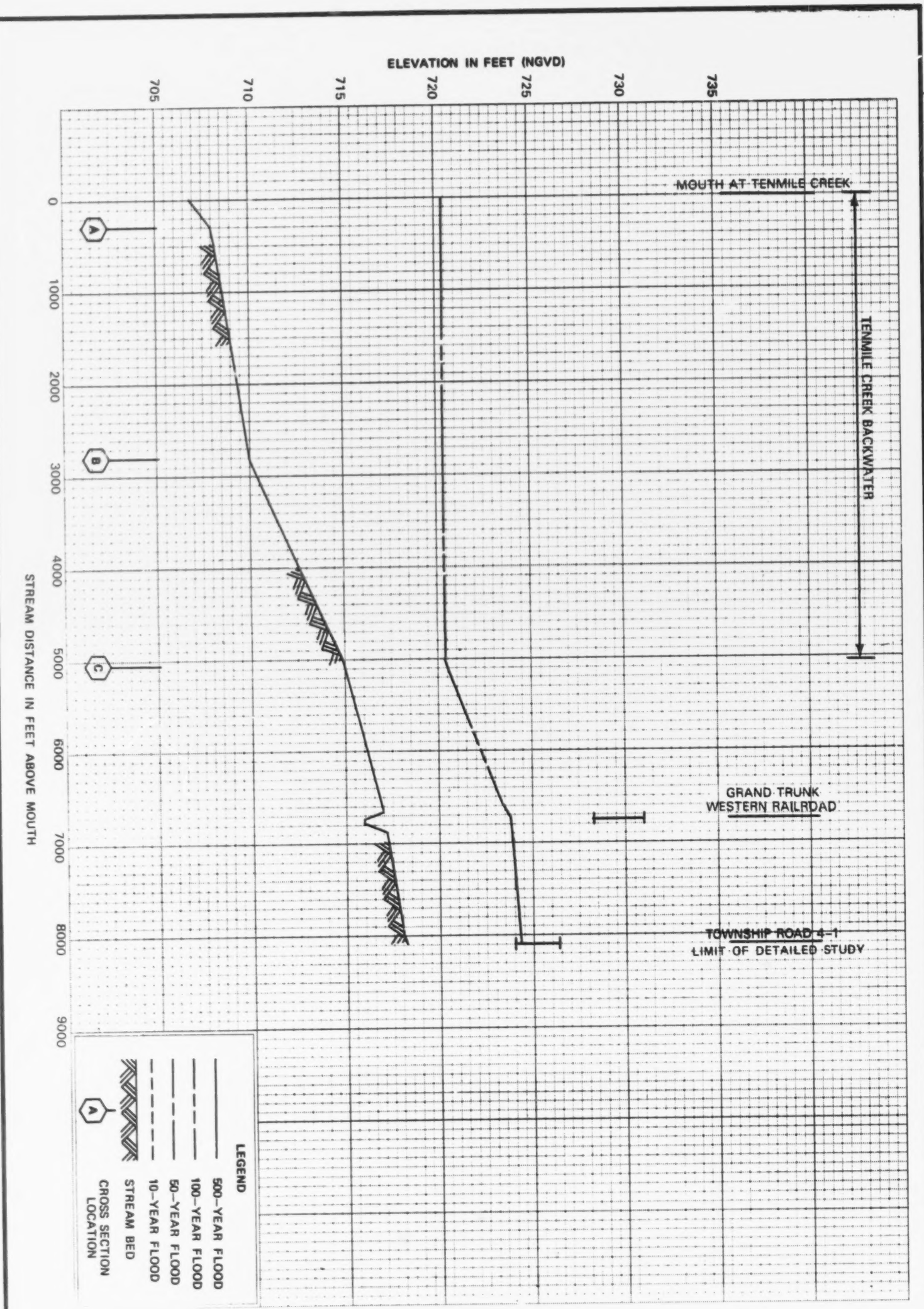
FLOOD PROFILES

TENMILE CREEK

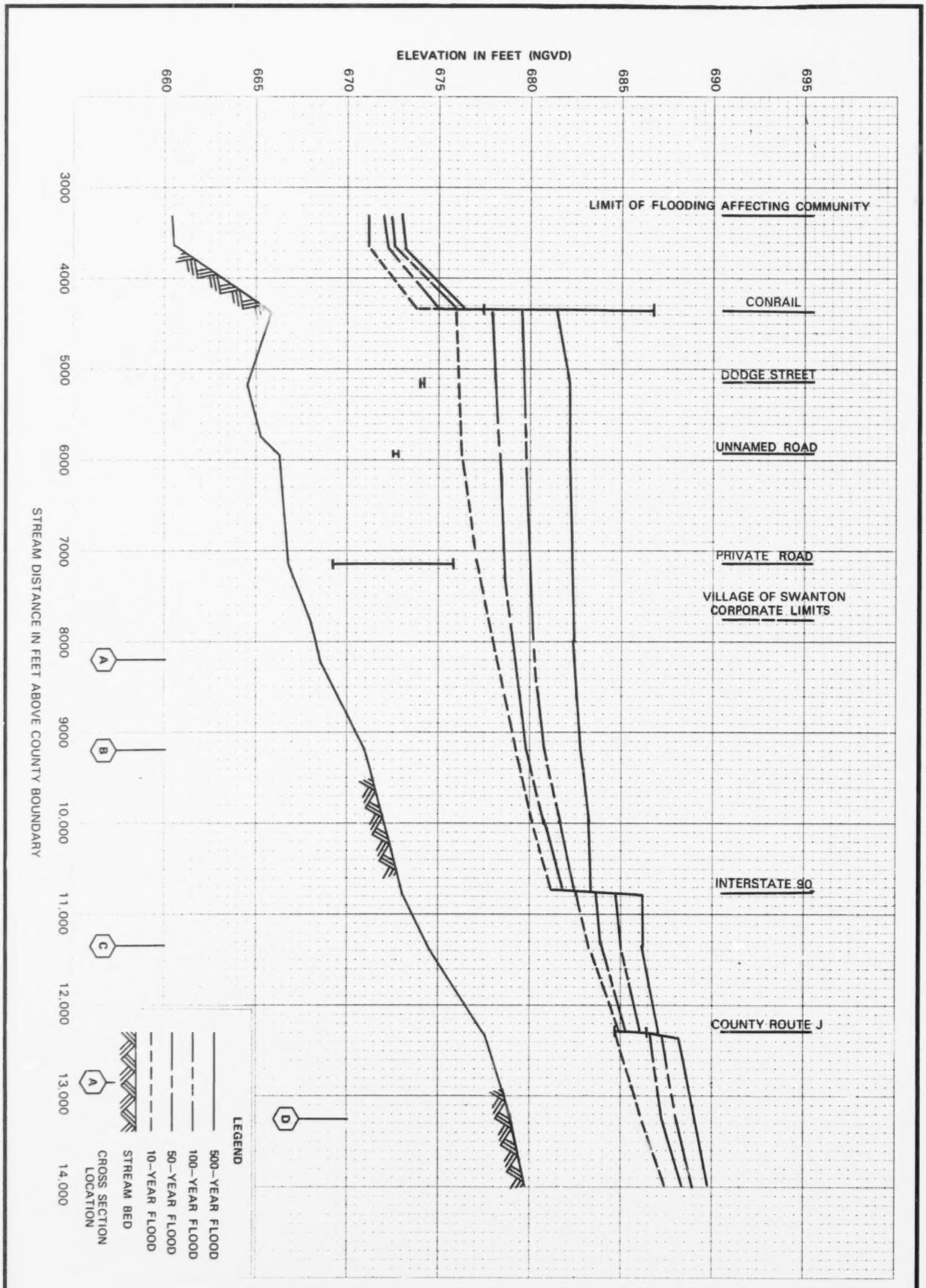
FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

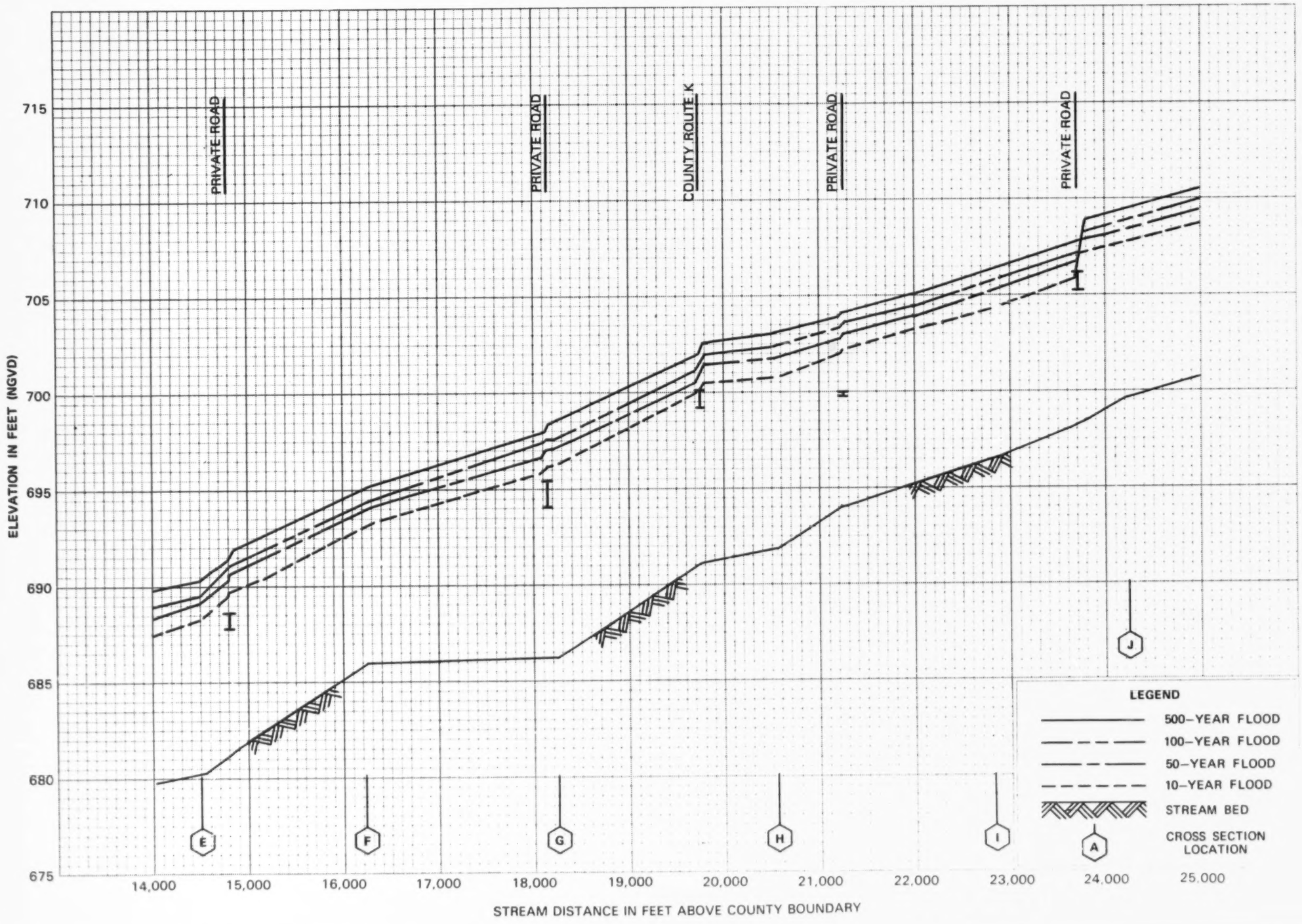
10P



11P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **NORTH TENMILE CREEK**



12P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **AI CREEK**



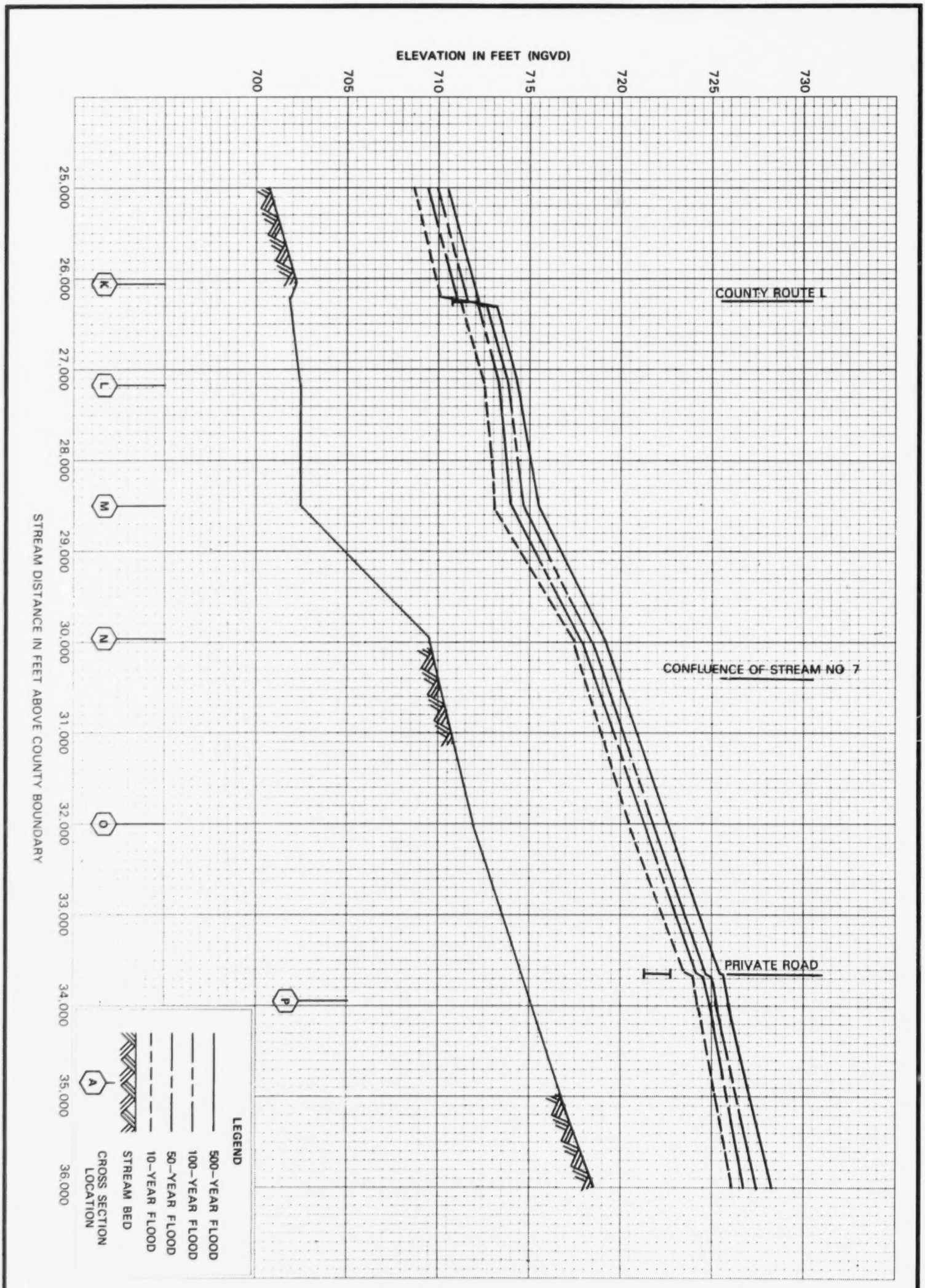
FLOOD PROFILES

AI CREEK

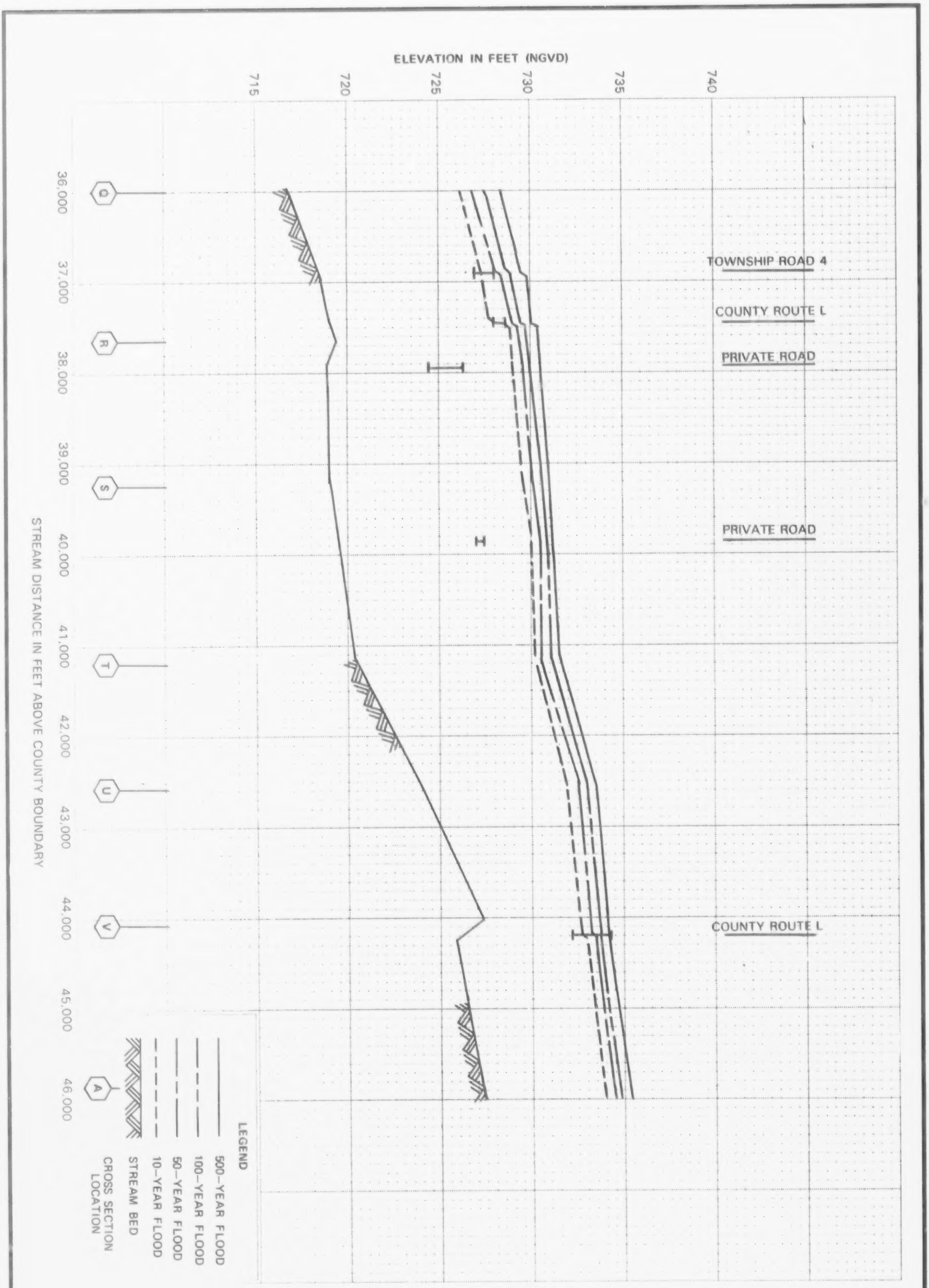
FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

13P



14P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **AI CREEK**



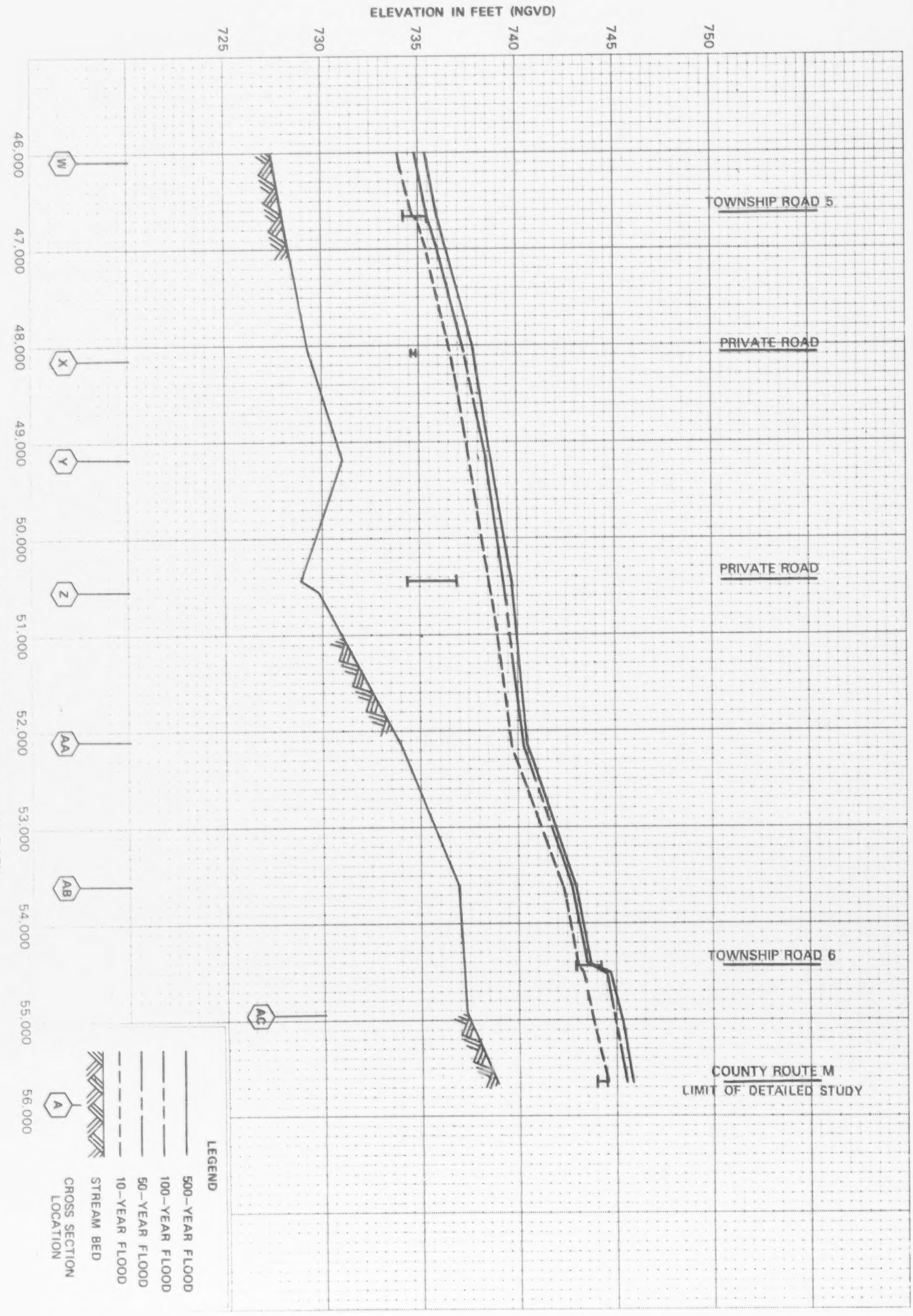
15P

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

AI CREEK



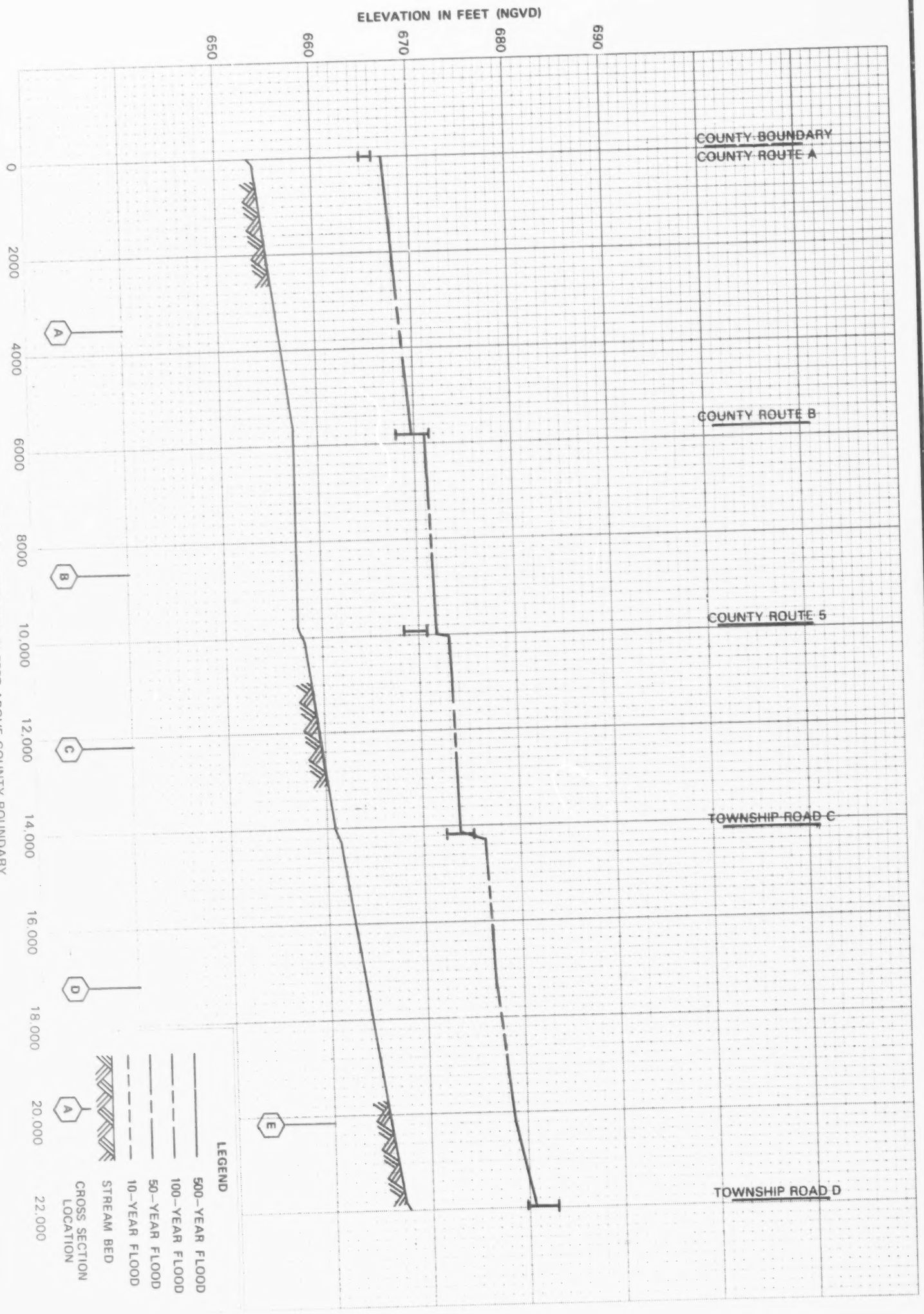
16P

FEDERAL EMERGENCY MANAGEMENT AGENCY

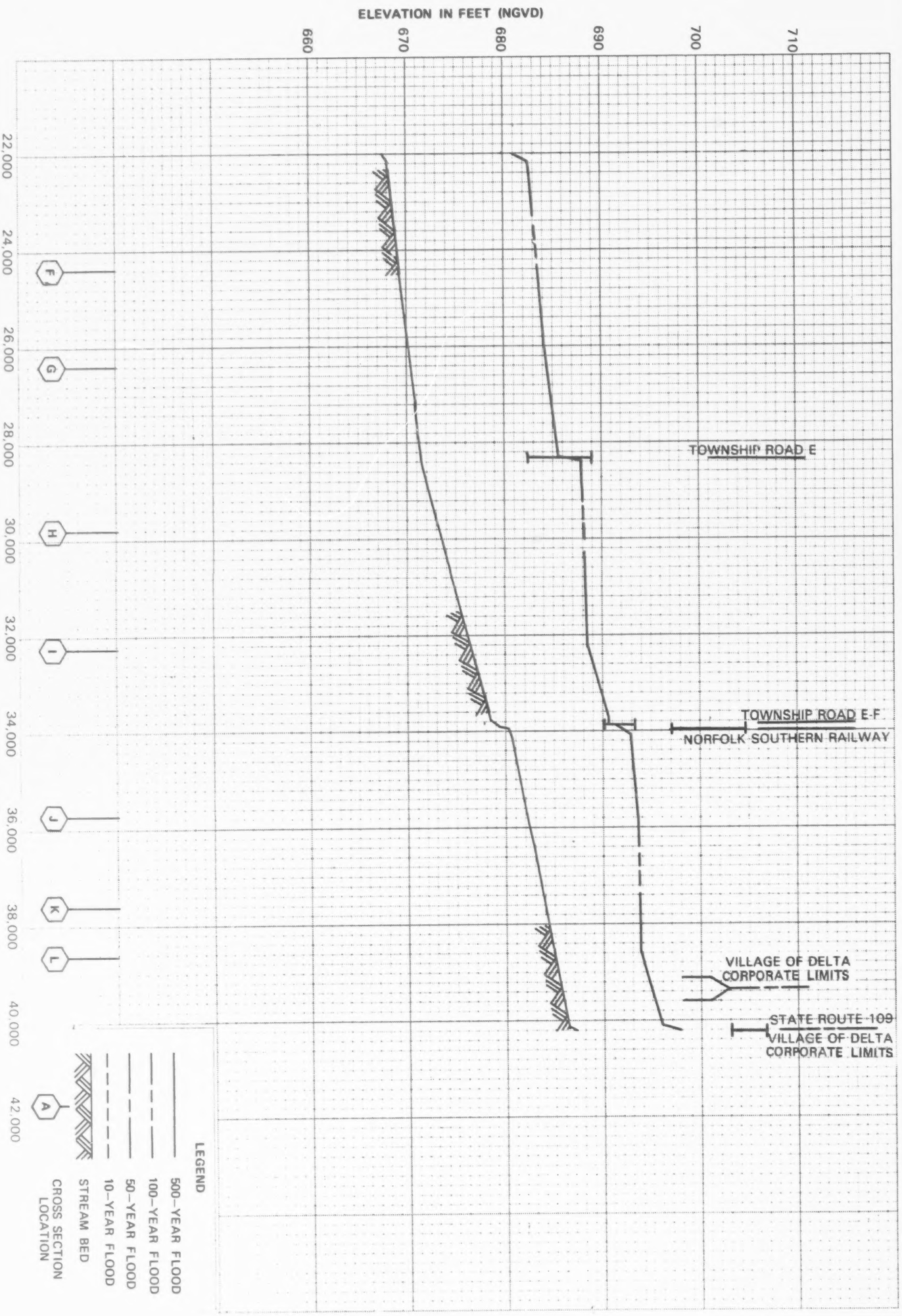
FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

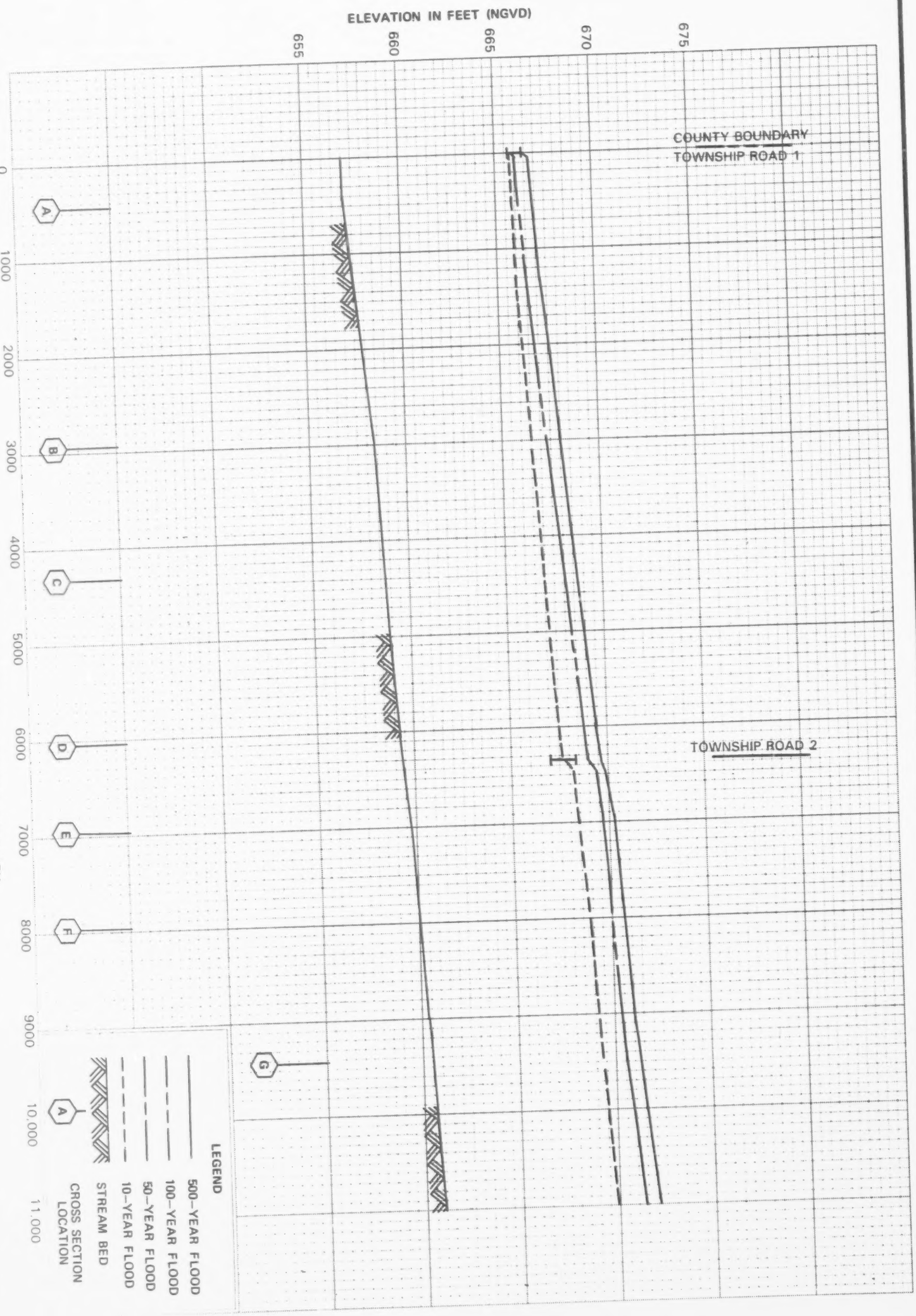
AI CREEK



17P	FEDERAL EMERGENCY MANAGEMENT AGENCY FULTON COUNTY, OH (UNINCORPORATED AREAS)	FLOOD PROFILES BAD CREEK



18P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **BAD CREEK**



19P

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

BLUE CREEK

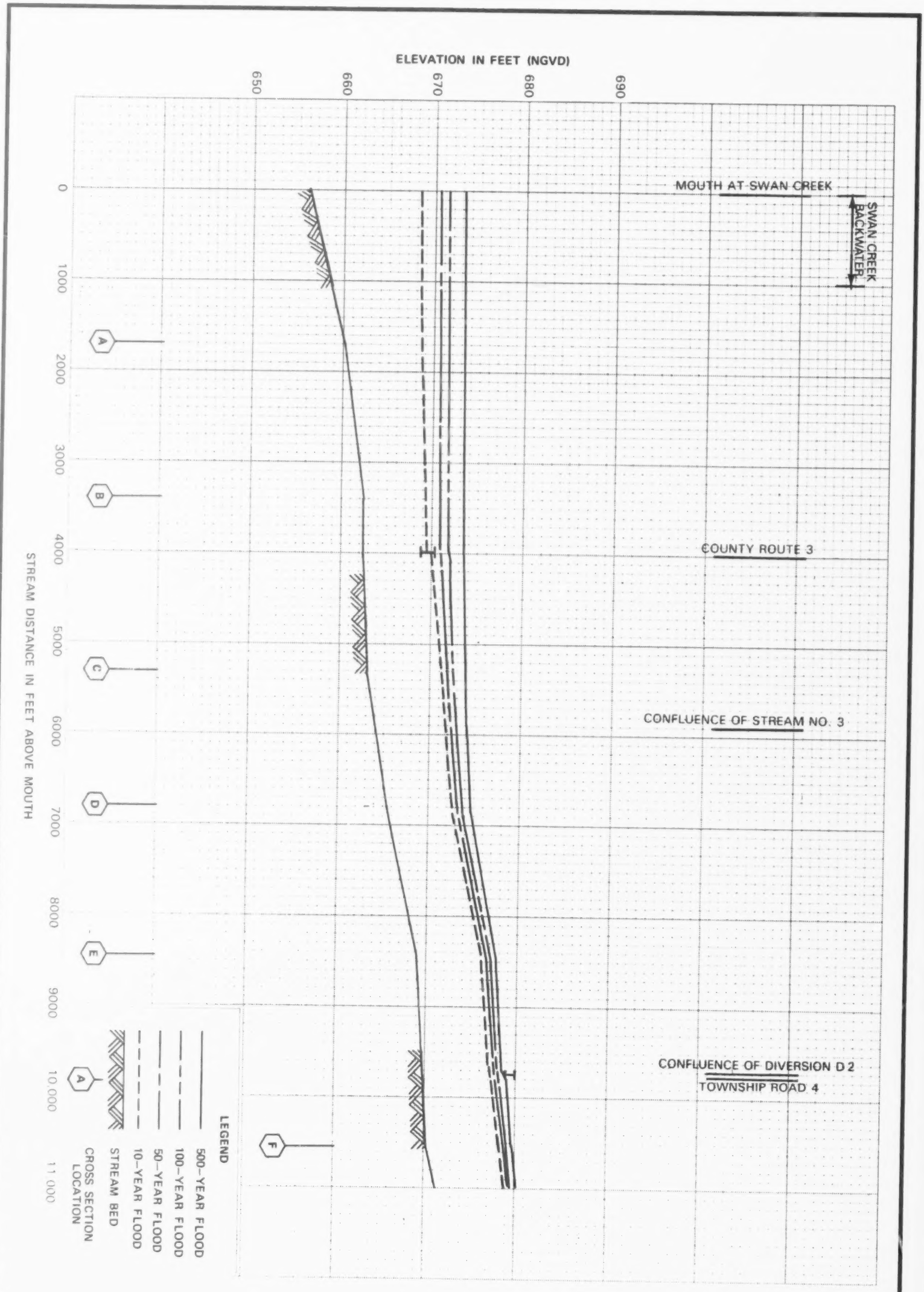
FLOOD PROFILES

BLUE CREEK

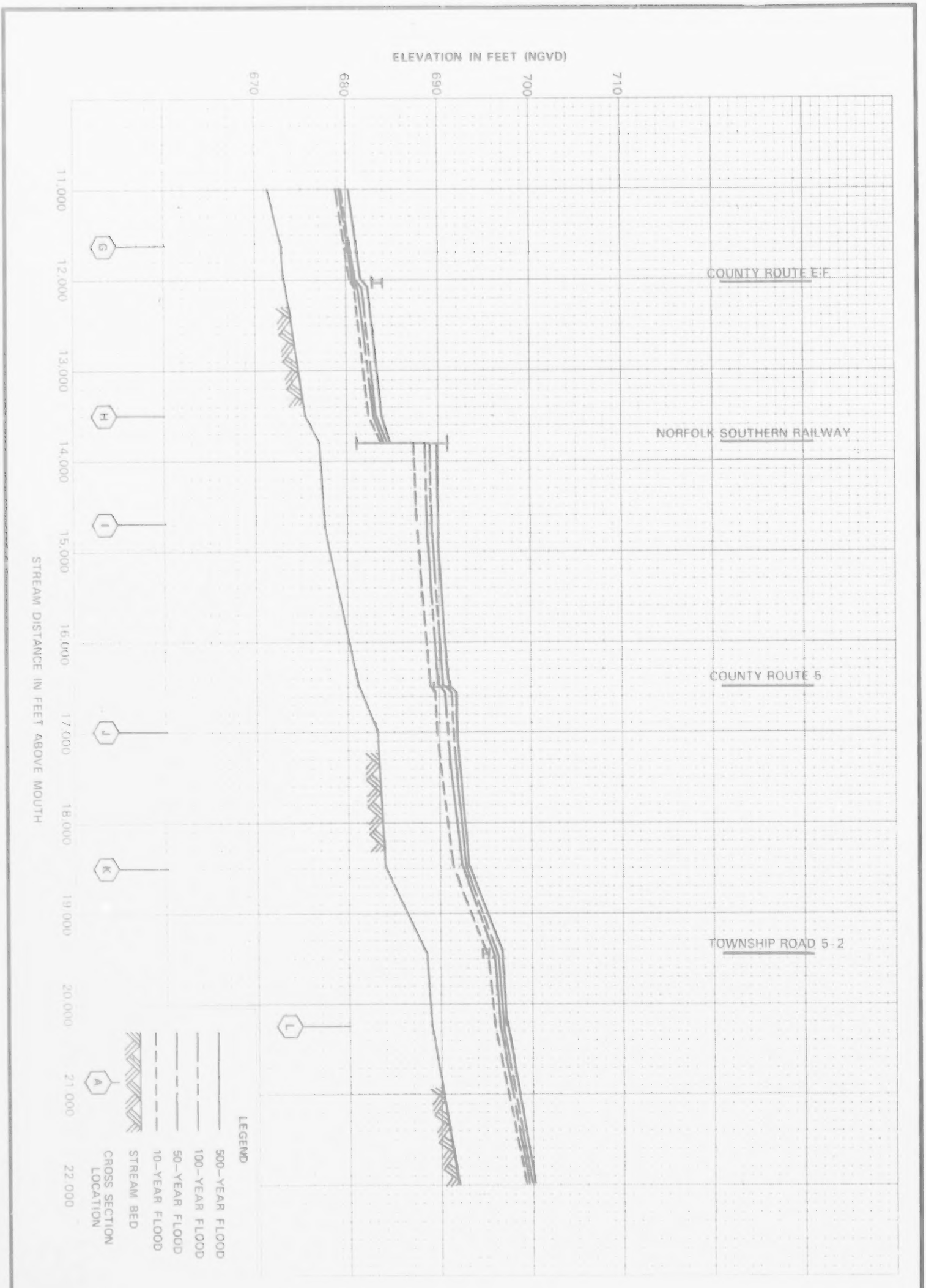
FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

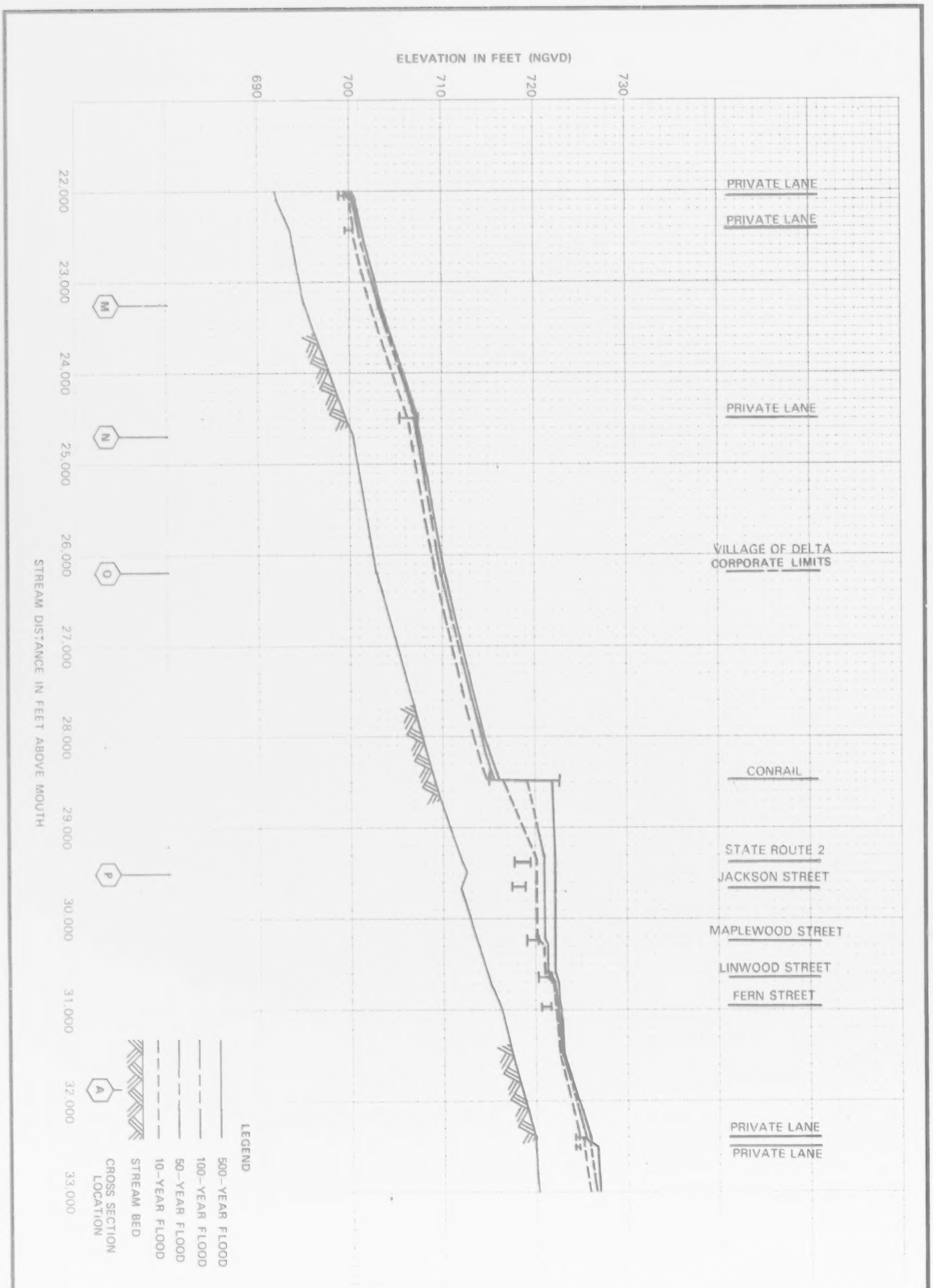
20P



21P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **FEWLESS CREEK**



22P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **FEWLESS CREEK**



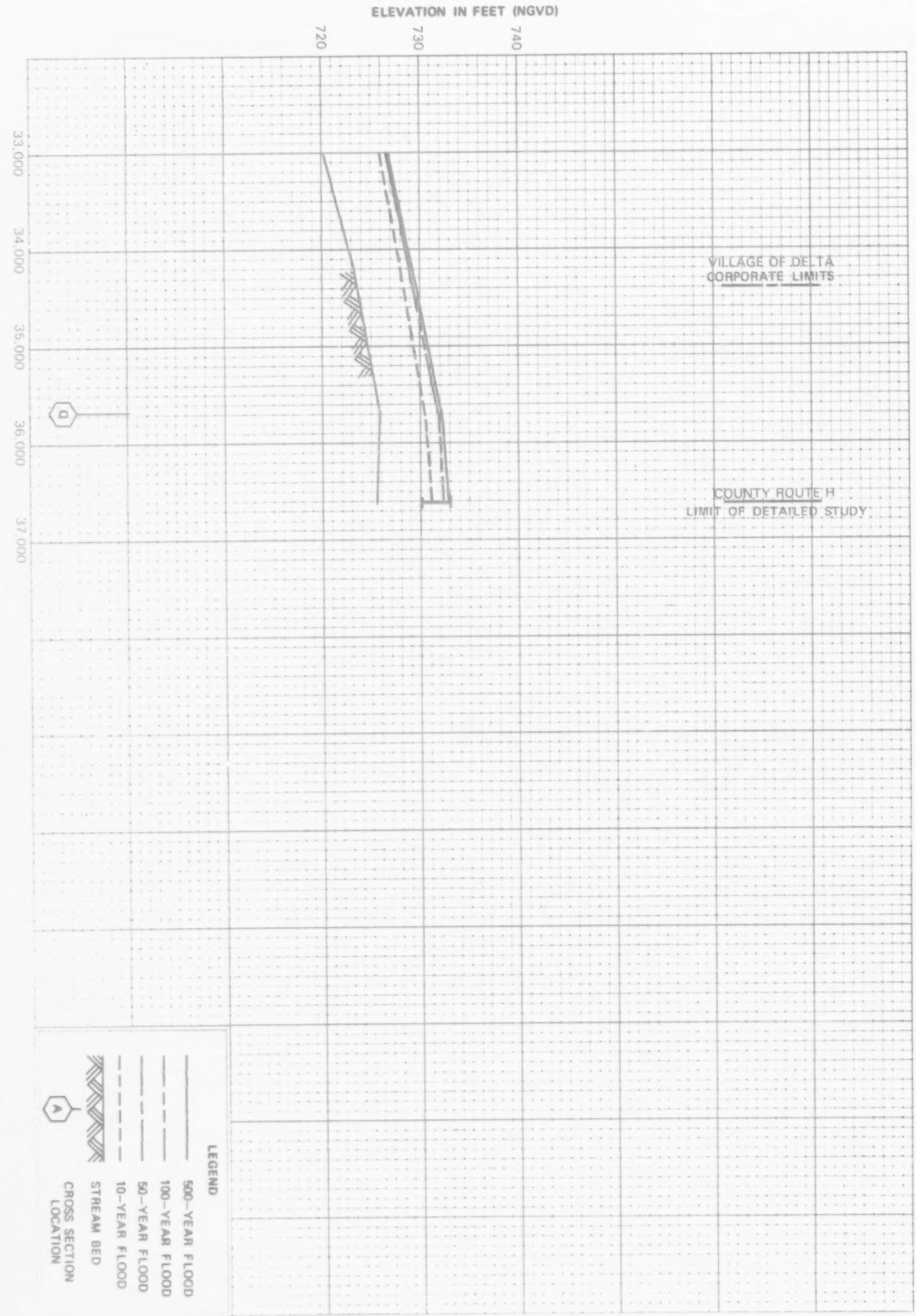
23P

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

FEWLESS CREEK

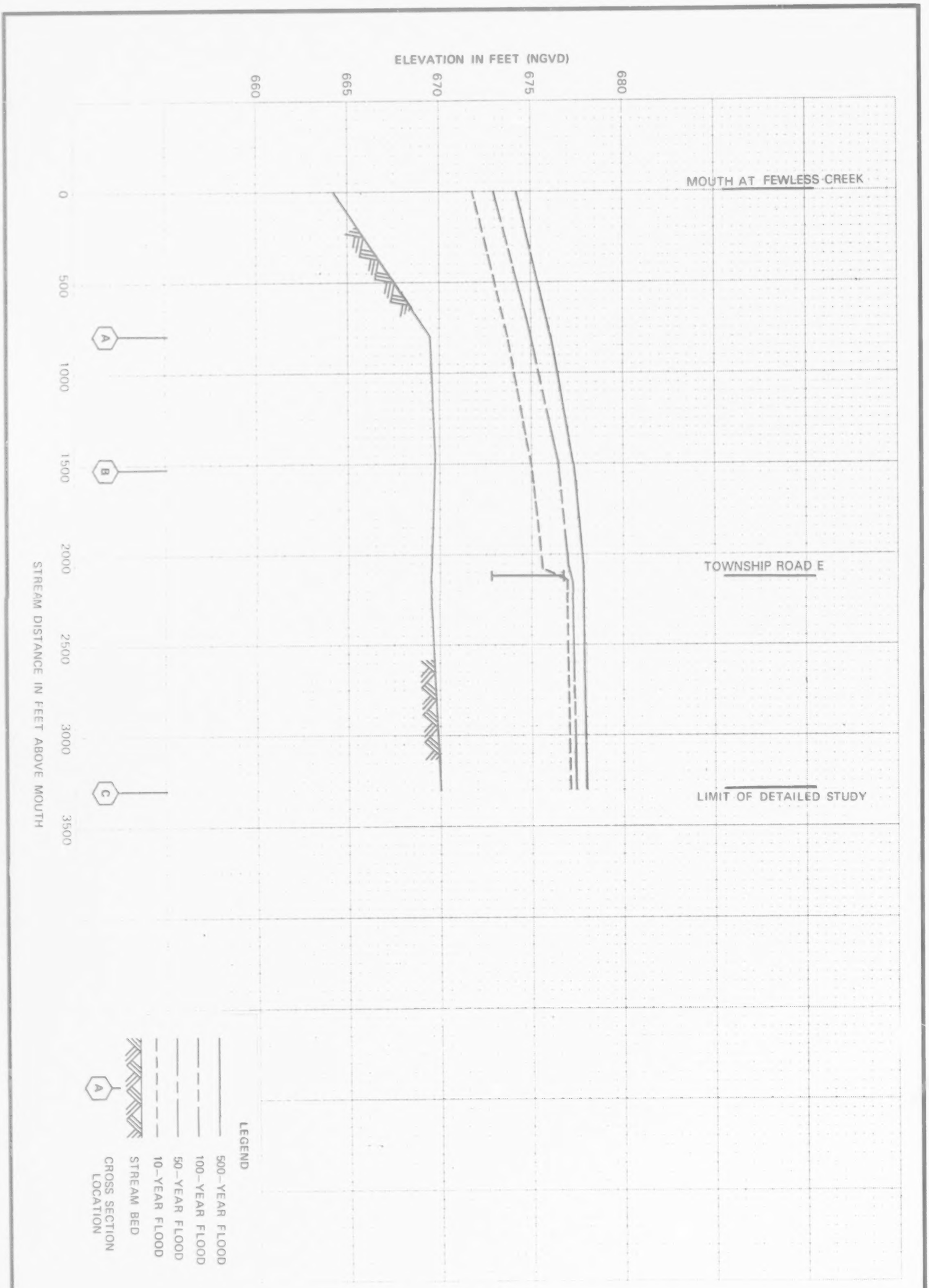


FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

FEWLESS CREEK



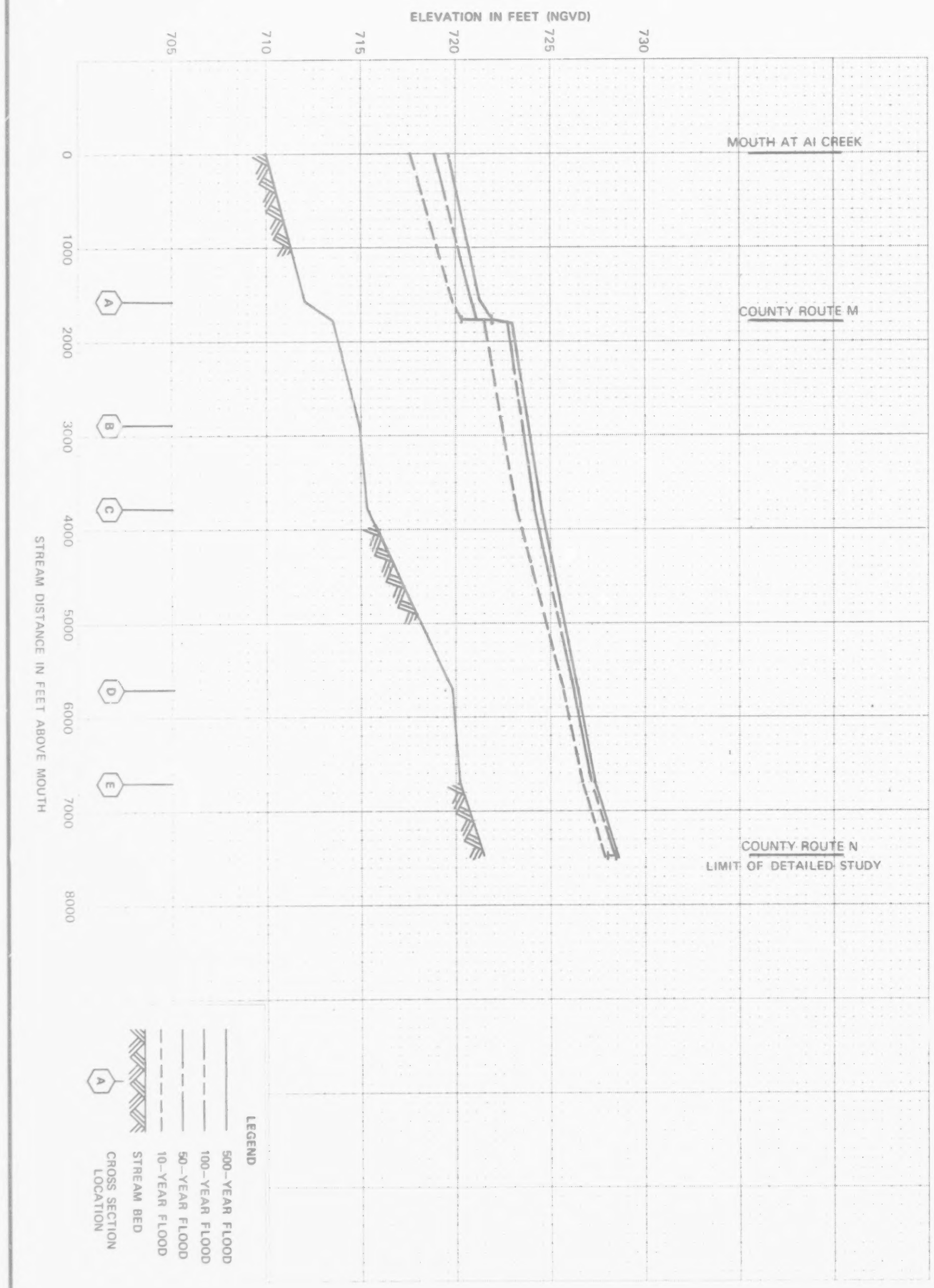
25P

FEDERAL EMERGENCY MANAGEMENT AGENCY

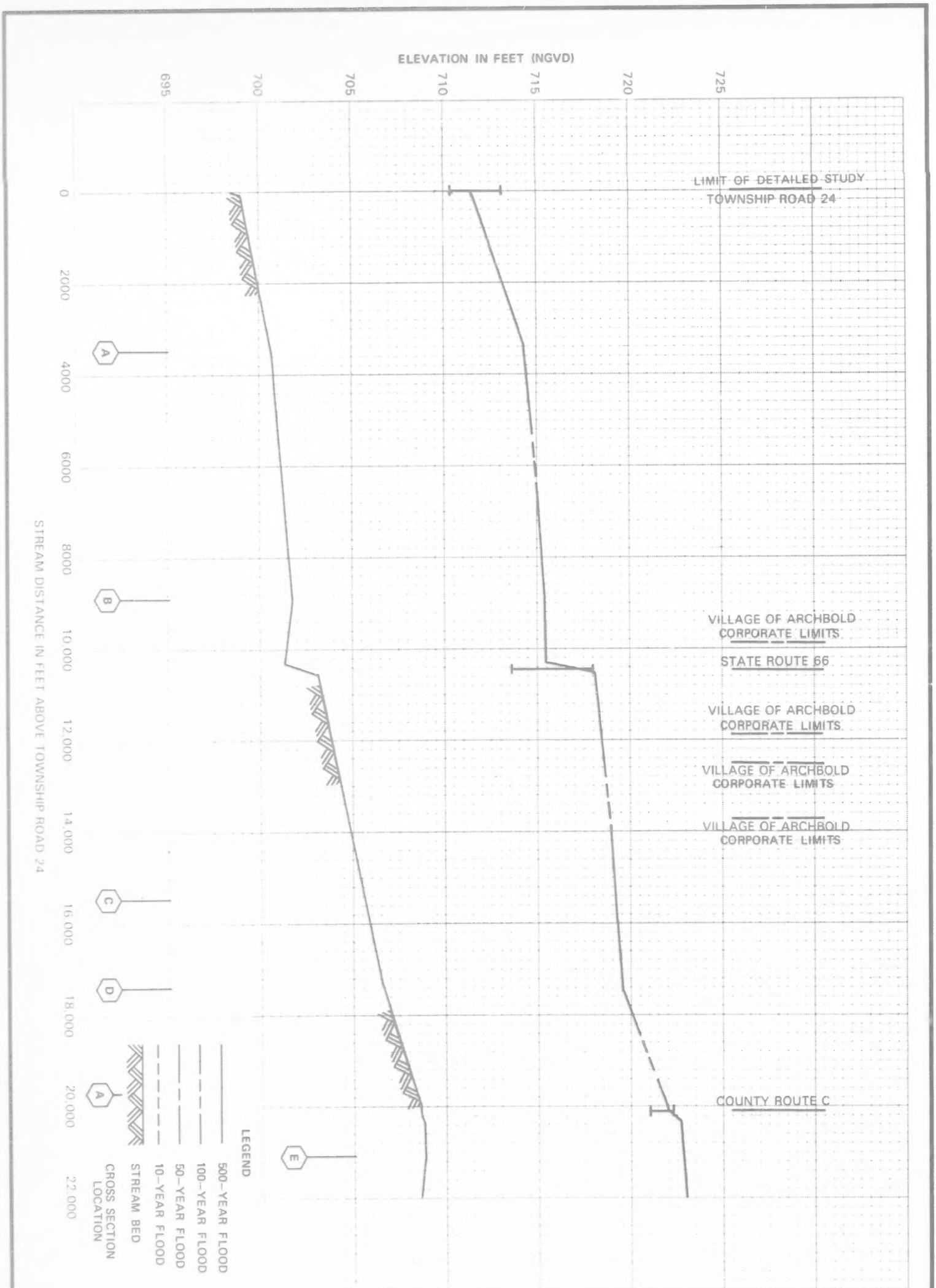
FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

STREAM NO. 3



26P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **STREAM NO. 7**



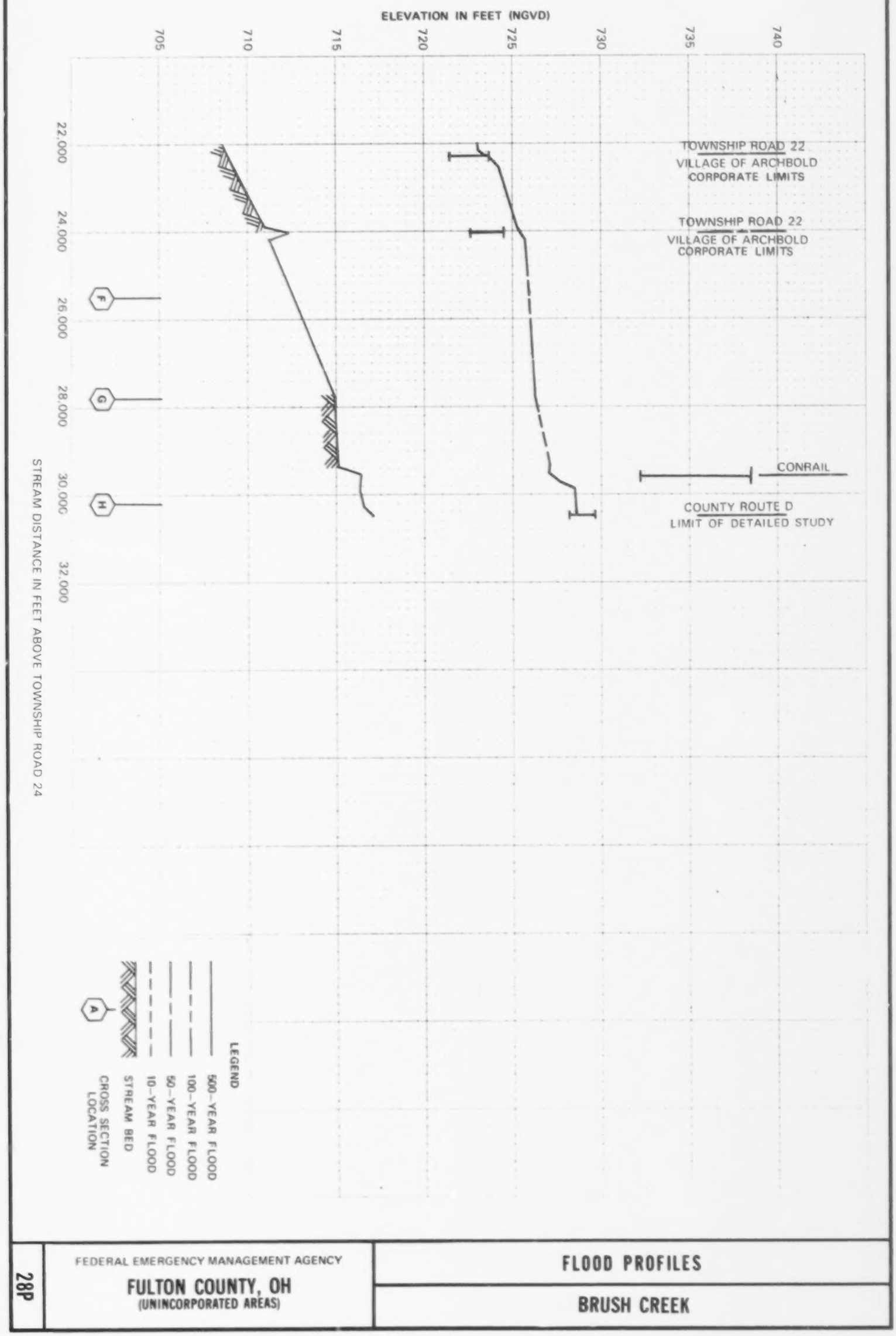
27P

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

FLOOD PROFILES

BRUSH CREEK



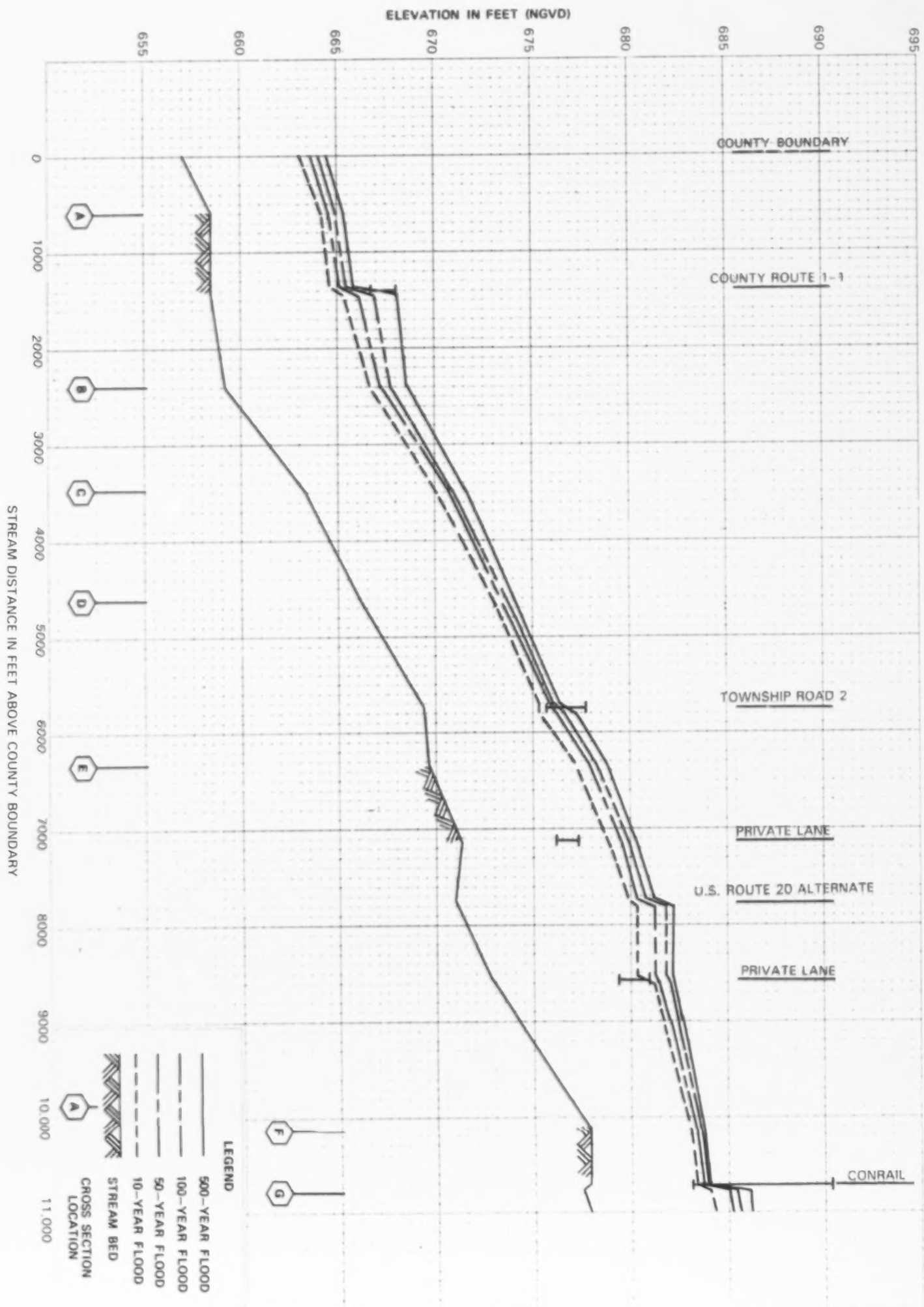
28P

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

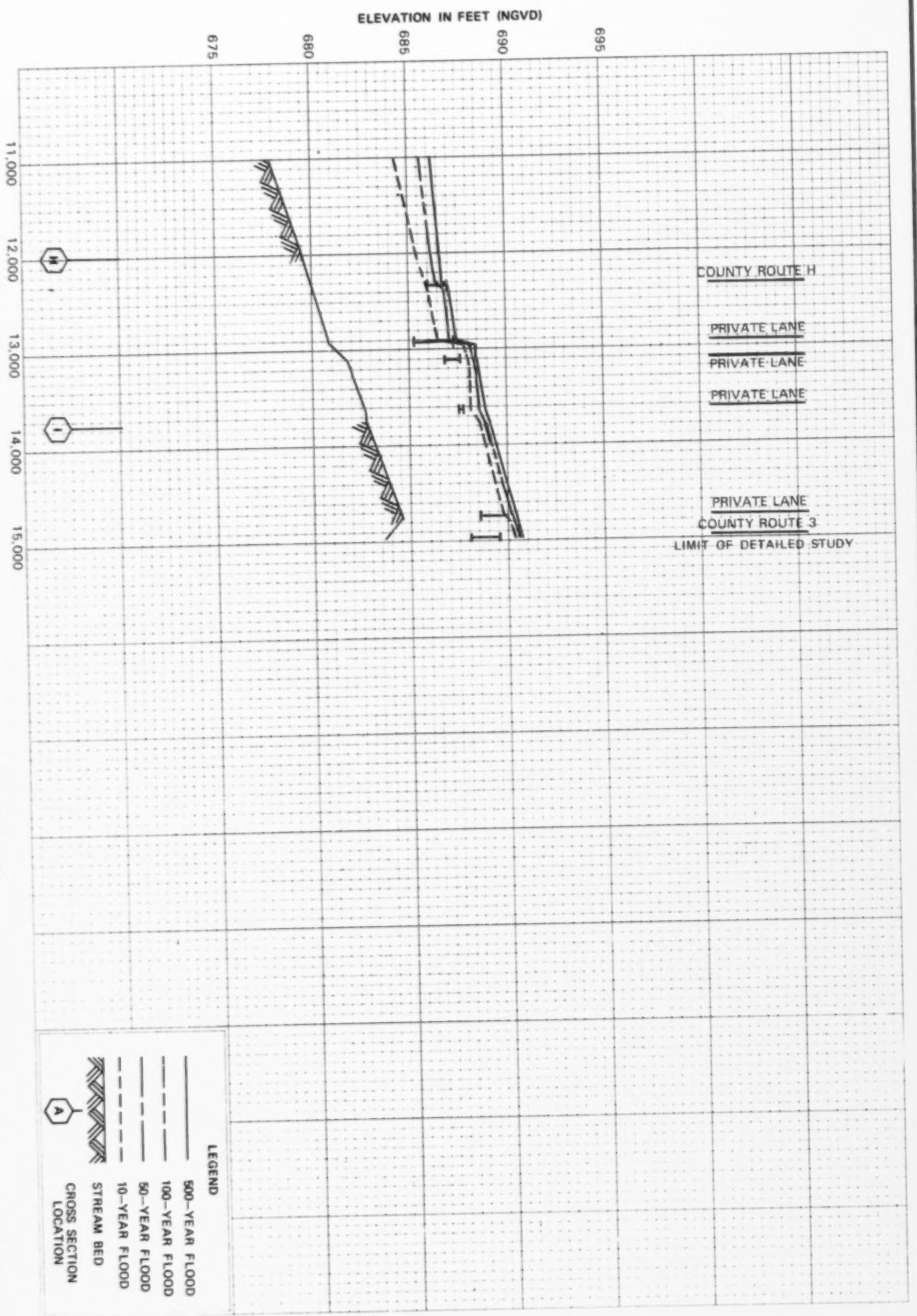
FLOOD PROFILES

BRUSH CREEK



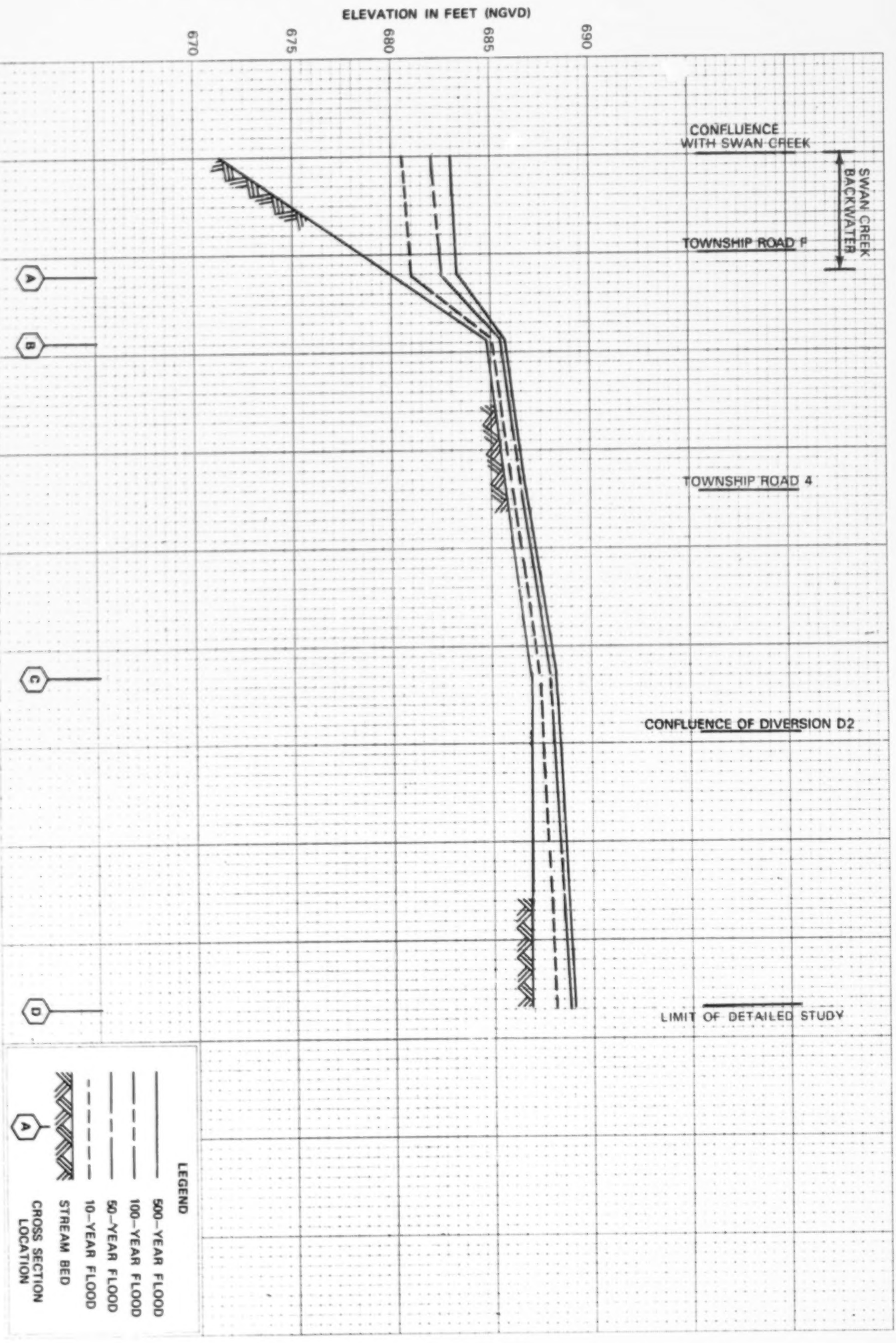
55

29P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **TRIBUTARY A**

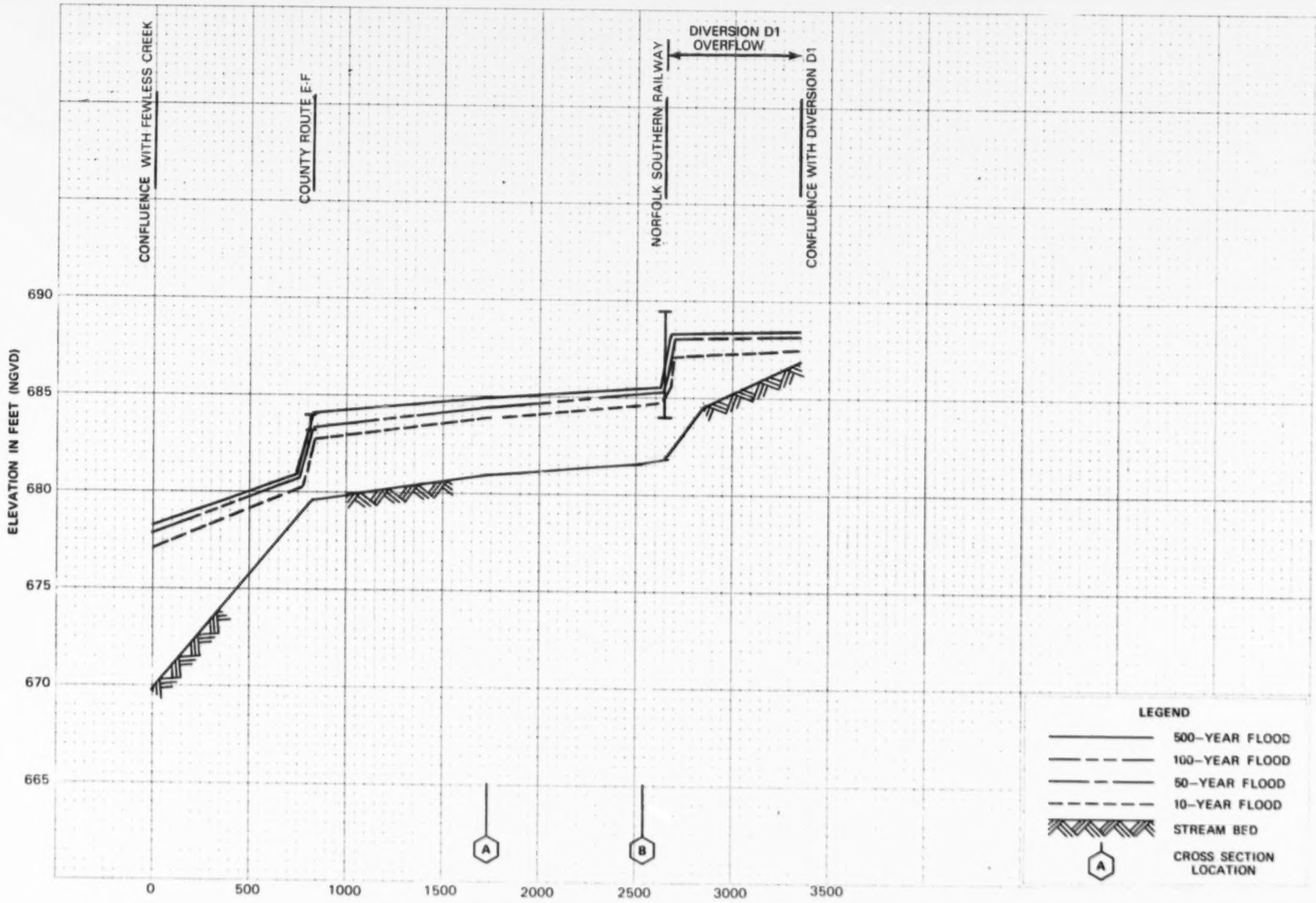


56

30P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **TRIBUTARY A**



31P	FEDERAL EMERGENCY MANAGEMENT AGENCY **FULTON COUNTY, OH** (UNINCORPORATED AREAS)	**FLOOD PROFILES** **DIVERSION D1**



FLOOD PROFILES

DIVERSION D2

FEDERAL EMERGENCY MANAGEMENT AGENCY

FULTON COUNTY, OH
(UNINCORPORATED AREAS)

32P